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AUTHOR Smalley, Shirley
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ABSTRACT

An Indiana curriculum project involving the New Castle Area Vocational School and the Indiana Vocational Technical College Regions 6 and 8 addressed the need for establishing an articulation plan to provide for vertical movement of vocational students from secondary to postsecondary levels. Major objectives were (1) development and implementation of an economically feasible articulation plan: (2) implementation of inservice staff training: (3) joint performance-based curriculum development for the four program areas (job titles) of medical assistant, child care assistant, clerk-typist, and machinist apprentice: and (4) continuing curriculum development. The project demonstrated that staff can be trained to develop performance-based programs and how the change to performance-based vocational education can be accomplished without disrupting the efficient operation of existing programs. The articulation plan developed proved to be workable for students, staff, and administrators. Appendixes, comprising most of the report, include the articulation plan and summary of the articulation field test: teacher introduction to domain-referenced testing (DRT): materials for the domain (vital signs: task analyses, subtasks and DRT): summary of the machine shop field test: the welding survey and summary: welding matrix, purge sheet for tasks, and course plan: distributive education management system: and teacher formative evaluation forms. (YLB)

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FINAL REPORT

LOCAL IMPLEMENTATION OF PERFORMANCE-BASED CURRICULUM

By: Shirley Smalley

Project Number 61-79-III-3

New Castle Community School Corporation
New Castle, Indiana

October 1, 1979

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

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II. PROJECT POPULATION

Groups	Numbers of persons:	
	Impacted by project	Conducting or giving input
students		
secondary	400	43
postsecondary	200	9
adult		
school personnel		
secondary	80	15
postsecondary	40	16
adult		
other		
teacher educators		
employers		
employees		
other:________		
special needs		
disadvantaged	270	23
handicapped	30	1
migrant		
minority	100	3
limited English proficiency		
other:________		

PROJECT STAFF

PROJECT DIRECTOR	Beverly Hankenhoff
PRINCIPAL INVESTIGATOR	Shirley Smalley
PROJECT SECRETARY	Rita Stanley
EDITOR	Judy Walden

PROGRAM RESEARCHERS

NEW CASTLE AREA VOCATIONAL SCHOOL	
HEALTH OCCUPATIONS	Marilyn Contreras
HOME ECONOMICS RELATED OCCUPATIONS	Muzetta Guymon Mary Jo Bradburn
INTENSIVE OFFICE LABORATORY	Carolyn Todd
MACHINE SHOP	Virgil Rush
INDIANA VOCATIONAL TECHNICAL COLLEGE	
HEALTH OCCUPATIONS	Phyllis Bayt
HOME ECONOMICS RELATED OCCUPATIONS	Vickie Harris
INTENSIVE OFFICE LABORATORY	Joan Harkin
MACHINE SHOP	Dave Borck

NEW CASTLE AREA VOCATIONAL SCHOOL STAFF

ASSISTANT DIRECTOR	Don Geozeff
BUILDING TRADES	Randy Miller
COOPERATIVE OFFICE EDUCATION	Cecil Powell
DISTRIBUTIVE EDUCATION	Len Smith
FOOD MANAGEMENT	Viola Schuler
GRAPHIC ARTS	Larry Koby
INDUSTRIAL COOPERATIVE TRAINING	John Sollman
PRE-VOCATIONAL EDUCATION	Mary Jo Bradburn Chris Barr
WELDING	Jan Conway

III. STATEMENT OF OBJECTIVES

Project number 61-79-III-3 had four major objectives:

(1) to develop and implement an economically feasible articulation plan based on performance-based curriculum between the New Castle Area Vocational School (NCAVS) and/or Indiana Vocational Technical College (IVTC) Regions 6 and 8. At least one job title of a program area will be implemented to field test the articulation plan for students between secondary and postsecondary levels.

(2) to implement in-service staff training programs for the New Castle Area Vocational School, IVTC-Region 6 and IVTC-Region 8 instructors to teach them how to develop performance-based programs utilizing available V-TECS catalogs. In-service programs will be conducted both separately and jointly among the NCAVS, IVTC-Region 6 and IVTC-Region 8 staffs with at least eight (8) in-service programs being conducted.

(3) to select four program areas with identified job titles for joint staff curriculum development between New Castle Area Vocational School and/or IVTC-Region 6 and IVTC-Region 8. Job titles will be medical assistant, child care assistant, clerk-typist and machinist apprentice. The curriculum will be developed according to the State Board Management System. The curriculum will serve disadvantaged and handicapped, as well as regular students. The performance-based curriculum developed for each job title will include task analyses, content identification, content limits and domain referenced tests. Modules will be developed for as many of the selected tasks as time permits. Two in-service programs will be held with the joint staff to evaluate, plan, and share performance-based curriculum developed.

(4) to continue the development of performance-based curriculum for 12 program areas of the NCAVS using the State Board Management System. Each of the 12 area vocational school program areas will have completed the following steps by the end of the project: conducted community survey to determine local job title matrix, prepared a local matrix, prepared or obtained task lists for the local job title matrix, selected job title(s) for curriculum development, validated tasks for job title(s) selected for curriculum development and selected core tasks for each program area.

IV. STATEMENT OF PURPOSE

The major thrust of the curriculum project addresses the need for establishing an articulation plan to provide for vertical movement of vocational students from secondary to postsecondary levels. Vertical mobility provides financial and time-saving advantages for students and educational agencies.

The articulation plan to be designed will permit students to be preplaced at the postsecondary level without repeating tasks already mastered at the secondary level. The foundation upon which the articulation plan will be based is performance-based curriculum. The postsecondary and secondary vocational staff will jointly develop the curriculum. The curriculum developed will be dependent upon the identification of tasks common to a job title offered at both educational levels. The learning content taught and the content limits set will be based on task analyses. Therefore, if both education levels agree upon the standard of performance required for the job title, articulation will be possible. The articulation plan developed will be field tested in at least one job title of a given program area.

Since the Indiana Vocational Technical College System (IVTC) provides postsecondary vocational training for adults, IVTC Regions 6 and 8 have been select for involvement in the curriculum project. In Indiana, secondary vocational education is provided by either a comprehensive high school or an area vocational school. The New Castle Area Vocational School (NCAVS) will represent the secondary level.

The primary success of the articulation plan will depend upon the in-service training programs for both IVTC and NCAVS staffs. Joint and separate in-service programs will be conducted to train the staff in developing performance-based curriculum for the articulation.

The twelve vocational programs of the NCAVS will continue converting from traditional-based curriculum to performance-based curriculum programs.

V. PROCEDURES

The administrative structure of the project provided that a principal investigator be employed to assume the responsibility for completion of all designated activities. The Directors of Instruction from IVTC Regions 6 and 8, in addition to the Director of the NCAVS served as an advisory committee to assist the principal investigator in the completion of the project. Staff members of IVTC Regions 6 and 8, along with their occupational colleagues of the area school, were selected to participate in the curriculum development.

Specific procedures were followed to reach each objective. For clarity each objective is addressed singularly.

Objective #1: Development of the Articulation Plan

The following procedure was used to develop the articulation plan:

a. principal investigator designed a proposed articulation plan

b. advisory committee consisting of Deans of IVTC Regions 4, 6, and 8; staff representation; and the Director of NCAVS reviewed the articulation plan

c. principal investigator revised the articulation plan in compliance with the recommendations of the advisory committee

d. the articulation plan was field tested in this area following the development of performance-based curriculum for the medical assistant program

e. the principal investigator modified the plan based on data collected from the field testing of the articulation plan. The advisory committee also provided input for the modification.

Objective #2: In-service Staff Training

Both separate and joint staff in-service training sessions were conducted to:

a. orient total staff members of IVTC Regions 6 and 8 and NCAVS to the objectives of the project

b. train the four program area staffs from IVTC and NCAVS in preparing performance-based curriculum to be used as the basis for articulation between the two levels of vocational education

c. expedite maximum performance-based curriculum development by holding monthly curriculum development meetings with program area staffs

d. train and/or assist the total staff of the NCAVS to continue development of performance-based programs

e. prepare the medical assistant program area staff of IVTC Region 8 and NCAVS to plan and field test the articulation plan

Objective #3: Joint Performance-Based Curriculum Development

Four program areas were selected for joint curriculum development. A specific job title was identified in each program area. The job titles were child care assistant, clerk-typist, machinist apprentice and medical assistant. The joint program staff followed the procedures listed below during the curriculum development.

The staff:

a. studied data from the V-TECS catalog compiled for each job title

b. selected domain(s) of tasks for curriculum development which were common to both educational levels. The postsecondary medical assistant program for the first quarter was adjusted to permit maximum articulation

c. restated tasks to meet specific criteria needed for task statement

d. developed performance-based curriculum for tasks: performed task analysis on each task, determined sub tasks, identified learning content, determined content limits, and prepared domain test(s)

e. developed modules for the medical assistant area which had been selected for field testing the articulation plan.

Objective #4: NCAVS Performance-Based Curriculum Development

The twelve NCAVS occupational areas continued the development of performance-based programs according to the State Board of Vocational and Technical Education Management System. Although the twelve programs were at different levels of development, the NCAVS staff completed the following stages of development during the project year:

a. conducted community surveys to determine local job title matrix and/or validated state matrix for the local community

b. prepared local job title matrix for the occupational area

c. prepared or obtained task inventories for job titles found in local matrix

d. selected job titles for curriculum development

e. validated tasks for the job title(s) selected for curriculum development

f. selected core tasks for each program curriculum

g. prepared program curriculum outline for all twelve vocational programs.

The performance-based distributive education program, based on the IDECC System, is currently being field tested. A copy of the Distributive Education management system is found in Appendix C.

The NCAVS students participated in a mini-field test for domain referenced tests entitled "Domain Referenced Test (DRT) for the Drill Operations Domain," prepared by Dr. Bill West. A summary of the field test is found in Appendix C.

VI. ANALYSIS PROCEDURES

Although the purpose of this project was to implement the performance-based model that had already been developed, some analysis procedures were used. Each objective that required analysis procedures is cited below.

Objective #1

The articulation plan was developed to benefit any student (secondary or adult) who wanted to receive credit at postsecondary level for prior learning. The target population selected for the field test included seven high school seniors, as well as selected adults. The purpose of the field test for the articulation plan was to see if

a. people (who had mastered specific tasks which included skills, knowledges and attitudes necessary to perform the task) could be successful when pre-placed into a postsecondary program;

b. administrative procedures established by the plan were workable for the postsecondary institution;

c. postsecondary and secondary programs could be coordinated in order that common tasks could be grouped into courses to maximize the articulation between levels;

d. postsecondary and secondary staffs could agree on the content identification for teaching and content limits for testing of the tasks to be articulated.

A summary of the field test can be found in Appendix A.

Objective #3

The curriculum for each job title was jointly developed by staff members from NCAVS and/or IVTC Regions 6 and 8. The two staff members met with the principal investigator to learn how to develop performance-based curriculum. The staff members then jointly developed one domain referenced test. Following the completion of the first domain test, the staff members individually developed performance-based curriculum. Periodic meetings were held to maintain agreement on content identification and content limits. The staff was reimbursed based on the products completed.

Objective #4

The advisory committee of each vocational program was structured so that the committee was capable of serving as a curriculum purge committee as well. The community surveys were sent to a cross section of business and industrial representiatives from Indiana Manpower Regions 6, 8 and 10 to collect an accurate data base for curriculum planning. The population surveyed included both private and public businesses, in addition to businesses of varying size (1-5 employees - small, 6-25 employees - medium and 26 employees or more - large).

The returned surveys were hand-tallied and a summary report compiled. A sample summary report is found in Appendix C. The summary report served as the data base for developing the local program matrix. The program advisory committee studied the survey data and recommended job titles to be included in the local program matrix. A sample local matrix can be found in Appendix C. Using the local matrix, staff and administration selected which job titles or cluster of job titles should be offered as training programs in the local school.

Once the job titles had been selected for training, task inventories were prepared or obtained from appropriate sources: e.g. V-TECS catalogs, professional organizations, etc. Each program advisory committee served as a purge committee to determine which tasks should be included in the curriculum. A sample purge sheet is included in Appendix C. The advisory committee recommended appropriate grouping of tasks into domains or teaching units.

Each staff member prepared a temporary course plan for the tasks identified for inclusion in the curriculum. The tasks identified were then ready for performance-based curriculum development. The course plan identified appropriate prerequisites, expected training time, equipment, resources and facilities needed to implement the course plan (Appendix C). The course plan will be revised as the performance-based curriculum is developed.

VII. FINDINGS

The processes and/or products are listed by objective. Only a sample of each product developed is included in the Appendix because of volume considerations. All other products are on file at the New Castle Area Vocational School.

Objective #1

a. An articulation plan was developed

b. Articulation plan was field tested in the medical assistant program. (Appendix A)

c. Articulation plan was revised and readied for implementation. (Appendix A)

d. The articulation activities are summerized in Chart 2 on page 11.

Objective #2

a. In-service meetings were conducted both jointly and separately with staff members of NCAVS, IVTC Region 6 and IVTC Region 8.

b. The in-service activities for the project are summarized in chart 1 on page 9.

Chart 2
Summary of Activities for Objective 1 and 3
Articulation and Joint Curriculum Development

	Clerk Typist	Child Care Assistant	Medical Assistant	Machinist Apprentice
Selected tasks for domain	1 domain: Reprographics (4 tasks)	4 domains: Supervise Food Activities (3 tasks) Meet the children (2 tasks) Provide physical care for 2-6 year olds (3 tasks) Supervise rest period (2 tasks)	8 domains: Give Primary Care (6 tasks) Give Secondary Care (5 tasks) Vital Signs (4 tasks) Emergency First Aid (8 tasks) Communication (2 tasks) Aseptic Technique (1 task) Sterilization (3 tasks) Anatomy and Physiology (10 tasks)	
Prepared task analyses	4	10	39	
Prepared Content Identification Sheets	1 Reprographics	1 Supervise Food Activities	1 Give Primary Care 1 Give Secondary Care 1 Vital Signs 1 Emergency First Aid 1 Communication 1 Aseptic Technique 1 Sterilization 1 Anatomy and Physiology	
Prepared Content Limits (Data Sheets)	3 Reprographics	3 Supervise Food Activities	3 Give Primary Care 3 Give Secondary Care 3 Vital Signs 3 Emergency First Aid 3 Communication 3 Aseptic Technique 3 Sterilization 3 Anatomy and Physiology	
Constructed Domain Referenced Test(s) (DRT)	1 Reprographics	1 Supervise Food Activities	1 Give Primary Care 1 Give Secondary Care 1 Vital Signs 1 Emergency First Aid 1 Communication 1 Aseptic Technique 1 Sterilization 1 Anatomy and Physiology	

Chart 1

SUMMARY OF
IN-SERVICE MEETINGS FOR PROJECT
(Objective 2)

	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Joint In-service Meetings				
Curriculum Development	5	27	32	
Articulation	2	1	1	1
NCAVS In-service Meetings				
Individual NCAVS Program Curriculum Development	8	14	16	
Total Staff In-service	2	2		3

Objective #3

a. Performance-based curriculum was developed for the job titles child care assistant, clerk-typist, machinist apprentice and medical assistant. Chart 2 on page 10 summarizes the articulation and joint curriculum development.

b. Samples of PBVE curriculum developed for medical assistant program, tasks by domains, task analyses, content identification, content limits and a domain referenced test are found in Appendix B.

	Clerk Typist	Child Care Assistant	Medical Assistant	Machinist Apprentice
Field Tested DRT			8 Tests/7 Students Give Primary Care Give Secondary Care Vital Signs Emergency First Aid Communication Aseptic Technique Sterilization Anatomy and Physiology	10 Tests/18 Students Drill Operations Domain consisted of following tests T3.1 Plan the Machining Work T3.2 Layout the workpiece T3.3 Machine workpiece, Center drill, Drill and deburr a hole T.4 Bore Hole T.5 Counterbore Hole T.6 Countersink Hole T.7 Hone a Hole T.9 Ream a Hole T.10 Spotface Hole T.11 Tap a Hole
Learning Modules developed for Articulation			Medical Terminology Pharmacology Performance Based Education System	
Articulation of Students			7 High School Students Test out of: Give Primary Care Give Secondary Care Vital Signs Emergency First Aid Communication Aseptic Technique Sterilization Anatomy and Physiology 4 High School Students pre-placed into Medical Terminology and Pharmacology 3 High School Students earned 17 hours of IVTC college credit through field test	

Objective #4

a. Performance-based programs at the NCAVS continued to be developed. Chart 4 on page 13 summarizes the activities of the twelve vocational programs at the area school.

b. Sample of PBVE curriculum developed for the welding program is found in Appendix C. Copies of the survey summary, local matrix, purge committee report and course plan are included.

Chart 3

Summary of activities for Objective 4

New Castle Area Vocational School 12 program areas have undergone the following development:

	ICT	HC	Food Mgmt	HERO	AG	COE	IOL	Machine Shop	DE	Welding	Bldg. Trades	Graphic Arts
Conducted community survey	X	X	X	X	X	X	X	X	X	X	X	X
Prepared local matrix	X	X	X	X	X	X	X	X	X	X	X	X
Selected job titles for curriculum development	X	X	X	X	X	X	X	X	X	X	X	X
Obtained task inventories for job titles	X	X	X	X	X	X	X	X	X	X	X	X
Validated tasks for job titles	X	X	X	X	X	X	X	X	X	X	X	X
Selected core tasks for all job titles	X	X	X	X	X	X	X	X	X	X	X	X
Group core tasks into domains	X	X	X	X	X	X	X	X	X	X	X	X
Prioritize domains for teaching	X	X	X	X	X	X	X	X	X	X	X	X
Prepare course outline	X	X	X	X	X	X	X	X	X	X	X	X

VIII. EVALUATION

The project advisory committee, project director and State Board of Vocational and Technical Education project coordinator reviewed and evaluated all activities of the project continuously throughout the year to insure timelines and objectives were met.

The staff members of the New Castle Area Vocational School and Indiana Vocational and Technical Colleges Regions 6 and 8 conducted self-evaluation of the performance-based curriculum as developed and field tested. A formative evaluation based on student performance was used when appropriate (Appendix D). Since the project was in the process of initial implementation, summative evaluation was not appropriate.

The NCAVS program advisory committees reviewed and evaluated all activities for the development of performance-based programs for the area school.

IX. CONCLUSIONS AND RECOMMENDATIONS

The findings of this project are significant to vocational administrators and teachers in the state of Indiana. The project has demonstrated that staff can be trained, through proper in-service, to develop performance-based programs. Also the project has demonstrated how the change to PBVE programs can be accomplished on a gradual basis without disrupting the efficient operation of existing programs.

The cooperative development and use of PBVE curriculum by secondary and postsecondary instructors provided the basis by which students could be articulated between educational levels without loss of training time or money invested. The articulation plan developed by the project proved to be workable for the students, staff and administrators.

Based on the findings and conclusions of this study, the project staff recommends using the local management system to further develop performance-based curriculum and to implement PBVE programs.

PBVE curriculum should continue to be jointly developed by secondary and postsecondary instructors. Additional occupational areas should be selected for joint curriculum development. The PBVE curriculum for one job title should be completely developed and field tested to determine what problems have to be overcome before students can fully articulate between programs.

Since the development of PBVE curriculum is so time-consuming, consideration should be given to developing a cooperative effort among vocational administrators and instructors in the preparation of PBVE curriculum.

APPENDIX A

A.1 Articulation Plan 18

A.2 Summary of the Articulation Field Test 20

Appendix A.1

Administrative Procedures
of
Articulation Process

Student Information

1. Apply directly to program chairman if job title is identified, either before or after seeing counselor.

2. Follow the appropriate procedure:

Secondary Student

a) Call for interview (chairman)
b) Obtain form to document clinical training experience (160-190 floor hours)
c) Request high school to send transcript and domain referenced test to chairman
d) Take domain referenced tests not attempted at secondary level if the skills acquired from on-the-job training

Adult Student

a) Call for interview (chairman)
b) Obtain form to document clinical training experience (160-190 floor hours)
c) Request high school to send transcript or GED
d) Take appropriate domain references

School Information

1. Administer Domain Referenced Tests.

2. Evaluate and assign credits for domains passed/articulated within course(s).

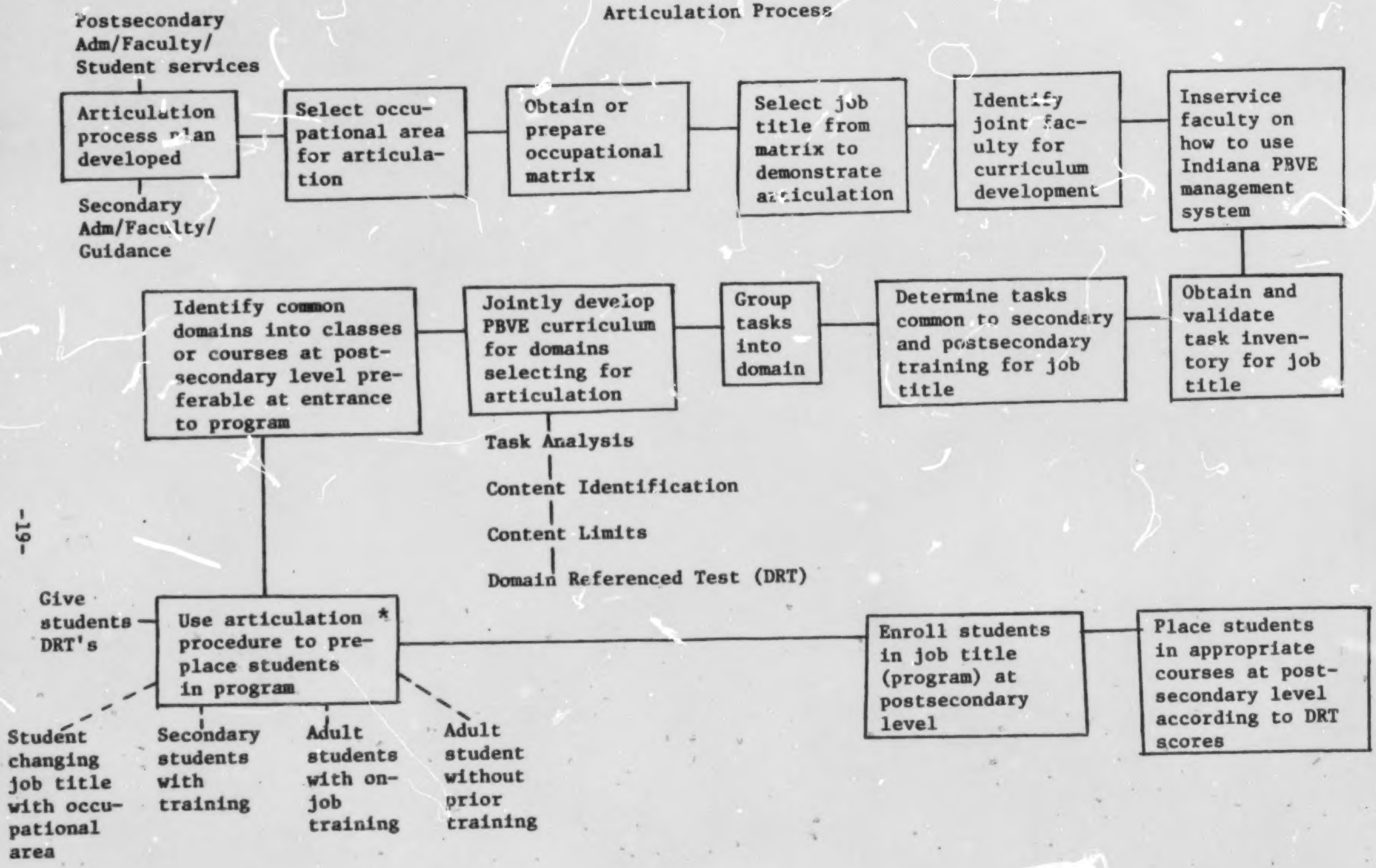
   a) Assign credits to each domain in course
   b) Grant credits for each domain in course

3. Pre-place students at the appropriate level based on tests. Do not charge students for pre-placement credit except on cost recovery basis for administrative costs.

4. Reassign any domains that student fails to perform following pre-placement.

5. Provide for open entry - open exit for students at quarter breaks (3 months).

Articulation Process


Postsecondary Adm/Faculty/ Student services
Articulation process plan developed
Secondary Adm/Faculty/ Guidance
Select occupational area for articulation
Obtain or prepare occupational matrix
Select job title from matrix to demonstrate articulation
Identify joint faculty for curriculum development
Inservice faculty on how to use Indiana PBVE management system
Obtain and validate task inventory for job title
Determine tasks common to secondary and postsecondary training for job title
Group tasks into domain
Jointly develop PBVE curriculum for domains selecting for articulation
Task Analysis
Content Identification
Content Limits
Domain Referenced Test (DRT)
Identify common domains into classes or courses at postsecondary level preferable at entrance to program
Give students DRT's
Use articulation procedure to preplace students in program *
Student changing job title with occupational area
Secondary students with training
Adult students with on-job training
Adult student without prior training
Enroll students in job title (program) at postsecondary level
Place students in appropriate courses at postsecondary level according to DRT scores

* See attached administrative procedure to be followed in articulation on students

Appendix A.2

SUMMARY OF ARTICULATION FIELD TEST

Target Population

Seven New Castle Area Vocational health occupations students who had trained as nurse aides or medical assistants were selected to field test the articulation plan. The seven senior students were concurrently completing the requirements for high school graduation. Two of the seven secondary students were married. Two of the students had children who were less than one year old. The seven students ranged in ages from seventeen to nineteen. The students were Caucasian, represented diversified socio-economic backgrounds and varying educational achievement levels. Also two adult students from Indiana Vocational and Technical College-Region 6, Anderson, Indiana, took part in the field test.

Procedure

The seven secondary students successfully completed the eight domain referenced tests jointly developed by the secondary and postsecondary staffs of the curriculum project. These eight domain referenced tests (DRT's) were over tasks identified as taught at both educational levels and common to both nurse aides and medical assistants. Following the completion of the DRT's, the students were pre-placed into the medical assistant project at IVTC-Region 8, Indianapolis, Indiana. The students were enrolled in two classes, medical terminology and pharmocology. The students' tuition, books and supplies were provided by monies from the curriculum project. The students were required to travel one hundred miles roundtrip each week to class. The project also reimbursed the travel expenses through the curriculum project.

The two adult students successfully completed the DRT for medical terminology.

Findings

Three of the seven students successfully completed the two IVTC classes. By credits awarded through DRT testing and credits earned from the two classes, the three secondary students earned seventeen college credits in the medical assistant program. The three students also received secondary vocational nurse aide certificates and IVTC nurse aide occupational certificates.

The four students that did not complete the field test dropped out of the articulation for personal reasons. One student had problems with her child, one was married during the field test and the two others could not complete the requirements for high school graduation plus the IVTC classes.

The two adults students from IVTC-Region 6, Anderson, Indiana, earned two credits for the medical terminology course. These students will receive the advanced credit upon entrance into the medical assistant program.

Conclusions

The articulation field test demonstrated that students (who had mastered specific tasks which included skills, knowledges and attitudes necessary to perform the task) could be successful when pre-placed into postsecondary programs.

The administrative procedures established by the plan were workable for the postsecondary institutions. It is possible for the postsecondary and secondary vocational programs to coordinate and sequence tasks into courses to maximize the opportunities for articulation between the two levels.

By using performance-based curriculum as the basis for articulation, the postsecondary and secondary staffs were able to agree on the content identification for teaching and the content limits for testing of the tasks. The students' mastery level was accepted by both levels, thus permitting the students to be articulated.

Recommendations

The articulation plan should be adopted for uniform usage between Indiana Vocational and Technical College System and all secondary vocational schools. Also the plan should be used to pre-place any adult who can demonstrate his/her mastery of specific tasks through performance on domain referenced tests.

Since the articulation plan is based on performance-based curriculum, the joint curriculum development must continue between the secondary and postsecondary levels. The rate of implementation of the articulation plan will thus depend on how rapidly the curriculum can be jointly developed.

APPENDIX B

B.1 Teacher Introduction to Domain Reference Testing 24

B.2 Domain: Vital Signs 34

B.3 Task Analyses for Domain 35

B.4 Common Subtasks Sheet 48

B.5 Content Identification Sheets for Domain 49

B.6 Content Limits for Domain (Data Sheets) 66

B.7 Domain Reference Planning Sheet 70

B.8 Domain Referenced Test: Vital Signs 72

TEACHER INTRODUCTION
TO
DOMAIN REFERENCED TESTING

prepared by:

Shirley Smalley - New Castle Area Vocational School

Phyllis Bayt - Indiana Vocational Technical College
Region 8

Bill West - Indiana University - Purdue University,
Indianapolis

-1979-

Appendix B.1

For the Teacher

Vocational education teachers need to know two things about students who have completed their programs:

1. can a student perform required tasks of the job to industrial standard?
2. can a student perform required tasks under varying conditions? In other words, is the graduating student a problem solver?

The vocational students need to know the answers to the following:

1. are the tasks I have learned to perform actually related to the industrial job?
2. can I perform the tasks well enough to get and to hold a job? Can I handle the job in a real life situation?
3. can I be placed in the learning cycle to correspond with my level of competency?

Performance based vocational education (PBVE) programs provide answers to the questions asked by teachers and students. The State Board of Vocational and Technical Education in Indiana has defined performance-based vocational educational programs as being based on job research where course content is identified through task analysis, instructional content is identified in terms of performance objectives and student progress is assessed through use of criterion-referenced measures.

Although PBVE in Indiana is defined as containing criterion-referenced tests, recent research into testing practices has cited that criterion-referenced tests tend to be too narrowly written and are not designed to measure the cognitive theory and psychomotor capabilities needed to perform the tasks. The student can perform the task under set conditions, but can he/she perform if the conditions are varied?

Domain referenced tests are now being developed instead of criterion-referenced tests.

A list of definitions of terms is included here for clarification. PBVE is based on identifying the job title for training and the tasks which the worker performs for that job title. In PBVE student evaluation, advancement and crediting/clarification are based upon student performance of tasks.

Definition of Terms

Job Title

Title(s) found in the Dictionary of Occupational Titles and those determined by job title analysis in Indiana.

Job

A job is the tasks performed by an individual to achieve a specific occupational requirement.

Matrix

A vocational matrix groups the job titles for a specific occupational area on the basis of common tasks performed and common learning content. The matrix is a process model for organizing vocational programs and identifying learning content. The essential ingredients in the matrix are the tasks from which are obtained the cognitive knowledge and psychomotor skills necessary to perform the task.

Tasks

A task is the smallest bit of meaningful activity that is done for its own sake when viewed in relation to the total array of job activities performed by the job holder. The tasks are selected for curriculum development either for a specific job title or tasks core to several job titles. The tasks selected are verified by job incumbents. The tasks must be restated to meet the following five criteria identified by the State Board Management System:

1. A task has a definite beginning and end.
2. A task is an inherent part of a job.
3. A task is done in a relatively short period of time.
4. A task is amenable to testing in a real-life situation.
5. A task is composed of subtasks which are capable of sequencing into a terminal performance.

Domain

A domain identifies the grouped tasks that form a common teaching unit and possess common learning content. All tasks for a job title are grouped into domains.

Task Analysis

Each task within a domain is analyzed. A task analysis identifies the stepwise procedures (elements) needed to be followed from initiation of a task to its successful completion and identifies the decisions the worker makes in performing the task.

Subtasks

After the task analyses are completed for all tasks in the domain, subtasks are identified for each task. Subtasks group the similar elements of the task analysis into procedure steps for the task. All tasks within a domain should have a majority of the same subtasks in order to have common learning content. Sometimes it is necessary to regroup tasks to a different domain if the majority of the subtasks are not the same.

Learning Content Identification (LCI)

A learning content identification sheet is prepared for each task in the domain. On the LCI sheet each subtask common to all tasks in the domain is studied to determine the concepts, principles, skills or processes and procedures needed to be learned before the task can be performed. Only the learning content necessary to performing the task is taught. The "nice to know" information is omitted. The learning content is divided into four categories by subtask. These categories are:

1. cognitive knowledge common (generalizable) to all tasks in the domain
2. cognitive knowledge specific to a task in the domain
3. skills common (transferable) to all tasks in the domain
4. skills specific to a task in the domain

Content Limits

The content limits set the allowable testing range for the content identification which was established as essential to the performance of the task(s) in the domain. A data sheet is prepared to identify the allowable variables to be tested for each task in the domain and for subtasks common to the domain. The variables listed on the data sheets are present in varying degrees in real-life situations. The domain referenced test is constructed to provide different new performance situations using the allowable variables. The tests are constructed by randomly selecting variables from content limit data sheets.

Domain Referenced Tests (DRT)

(Refer to the Definition of Terms section, page 24.) A domain referenced test can predict student success within a defined set of variables. The DRT is structured around the knowledge and skills identified as generalizable and transferable among tasks in a domain. The DRT is constructed to test for a random or stratified sample of variables representing a defined domain of tasks. The DRT's are designed to:

1. assist the teacher in deciding, with a great degree of accuracy, where to place a student in a training cycle;
2. predict student success in the performance of a group or domain of related tasks;
3. allow the teacher to develop additional DRT's by using the same format but changing the test data by manipulating task variables; and
4. measure the learner's mastery of a domain of tasks to industry standards.

Learning Modules

Learning modules provide for individual instruction. A performance-based learning module will contain an enabling performance objective for each subtask in the domain. The achievement of all the enabling objectives will result in the terminal performance objective. Learning modules are not required for PBVE, but the system works well with individualized instruction.

Development of Material Needed Before Writing the DRT

Before a DRT can be constructed definite steps should be followed. Each step in the curriculum development is described with an example cited.

Task Domains

The first step in developing a DRT is the grouping of similar or related tasks into a domain (teaching unit). The basis for grouping the tasks depends on learning commonalities shared by the tasks. The purpose of the grouping is to provide an organizational basis for curriculum development. An example of a domain from the health care core and the tasks included in the domain are:

Domain: Vital Signs

1. take a temperature
2. take a pulse
3. take a respiration rate
4. take a blood pressure

Some of the learning commonalities basic to all six tasks in the Vital Signs domain are:

1. obtain equipment
2. wash hands
3. greet patient
4. prepare equipment for test
5. prepare patient for test
6. take vital signs
7. record the test
8. discard and replace equipment
9. insure patient's comfort

An important feature of the DRT is that it allows for the testing of the domain commonalities in a test for a single task, "Take a respiration rate", for example, could be used to measure student mastery of the previous nine commonalities for the domain.

36

Task Analysis

After the domain is established, each task of the domain is analyzed. A person knowledgeable in the performance of each task is interviewed and each step taken and each decision made enroute to task performance is recorded. The steps and decision points are called task elements. The task analysis guides for the tasks in the Vital Signs domain are shown in Appendix B.3. The results supply an acceptable way to perform each task and a document from which learning content may be extracted.

Learning Content Identification (LCI)

The similar elements of each task analysis are grouped into procedural steps called subtasks for each task within the domain. Each subtask is studied to determine the concepts, principles, skills or processes and procedures needed to be taught for the learner to have the background to master the subtask for a given task. The learning content thus identified is grouped into four categories by subtask. These categories are:

1. cognitive knowledge common (generalizable) to all tasks in the domain
2. cognitive knowledge specific to a task in the domain
3. skills common (transferable) to all tasks in the domain
4. skills specific to a task in the domain

A sample LCI sheet is found in Appendix B.5, in addition to common subtasks in domain.

Content Limits Specification

The limits of allowable teacher/learning content are then specified. The test designers, in essence, fenced off an area of learning content which was considered to be essential to the performance of each task and tasks, collectively, in the domain. For example, the learning content limits for each task in the domain are shown on Content Limits Data Sheet A in Appendix B.6. The limits restrict the instruction in Vital Signs to include, but not exceed, the tasks specified for the domain and in addition limits the variations per task. For example, in the task, "take a temperature," the type is limited to oral, rectal and axillary. The DRT should measure only that material stated in the content limits.

The other dimension of task performance is the content limits for the subtask variables common to all tasks in the domain. The variables are present in varying degrees and combinations in real-life situations. These limits are shown on Content Limits Data Sheets B and C in Appendix B.4. The variables are present in varying degrees and combinations. For example, in the subtask,"prepare patient for test," the preparation is limited to: position patient, consider external complications and provide for patient's privacy. These limits are shown on Content Limits Data Sheet B in Appendix B.6.

The last dimension of task performance is the content limits for the supplies and equipment in the domain. Data Sheet C pertains to the variables allowed for the supplies and equipment used in testing.

These generalizable variables together with the content limits of the tasks in the domain must be taught and then tested for by creating new and novel performance situations. The tests are structured by randomly selected variables from Data Sheets A, B, and C and combining them into a test.

Directions for Preparing DRT's

Unlimited numbers of DRT's may be constructed by combining in various ways the content limits specified on the Data Sheet A, B, and C. Make-up test can be assembled also by selecting and combining in a different way the information on the Data Sheets. Each DRT constructed on the basis of these content limits would have content validity with instruction. The test would measure,in an unbiased way, the individual's capability to perform any variation of the task or sub task in the domain.

I. prepare for writing DRT:
   - A. Refer to the learning content identification sheets (LCI) for tasks in the domain to be tested.
   - B. Review the learning content identified by sub task for all the tasks in the domain. Be sure all the cognitive knowledges and psychomotor skills have been taught.
   - C. Review the content limit data sheets to determine the extent of the allowable content that may be included on the DRT. The more variables of content that are included on the DRT the more valid and reliable the test will be.

II. Assemble the DRT using the following format: (See sample DRT in Appendix B)

A. Prepare DRT

Do	Purpose
1. Identify Domain	Identifies teaching unit
2. Identify Tasks in Domain	
3. Write a Domain Descriptor-	Identifies the general task statement of the behavior and content upon which the domain test is based (objective).
4. Establish Content Limits- a. Select variables of the tasks to be tested b. Select variables of the sub tasks to be tested	Identifies tasks and sub tasks eligible for inclusion as test items. All sections on data sheets must be represented on the test and the more variables that are included from each section the more valid and reliable the test will be.
5. State criteria to be used for evaluation-	Specifies rules by which the adequacy of response to the test items can be judged i.e. checklist
6. List Test Stimulus Characteristics-	Specifies combinations of variables to be tested. Lists what student will be given by stating conditions for testing.
7. List Test Response	Specifies what response must be made by student. Responses must remain same for all DRT's for a given domain.
8. Prepare Student Instruction Sheet	

B. Prepare all accessory materials for test

Appendix B.2

Task analyses for Domain: VITAL SIGNS

- Take a Temperature
  - Take Oral Temperature
  - Take Rectal Temperature
  - Take Axillary Temperature
- Take a Pulse
- Take a Respiration Rate
- Take a Blood Pressure

Common Subtasks for the Domain

Learning Content Identification

- Take a Temperature
- Take a Pulse
- Take a Respiration Rate
- Take a Blood Pressure

Data Sheet A - Content Limits for Tasks in Domain

Data Sheet B - Content Limits for Subtasks in Domain

Data Sheet C - Content Limits for Equipment and Supplies in Domain

TASK ANALYSIS GUIDE

I. Task Statement:

Take Oral Temperature (glass/electric)

II. Task Performance Cues:

Patient has clinical symptoms of an elevated temperature (hot feeling, flushed/red face)
Upon request--Upon doctor's orders

III. Task Performance Procedures:

A. When a decision must be made, indicate alternatives as "yes-no" answers to questions.

B. List performance steps by most frequently occurring sequence.

TASK ELEMENTS	Decisions		Go to Step	Learning Content	Tools, References, Work Aids
	Yes	No			
1. Wash hands			1a		
1a. Greet the patient			2		
2. Explain procedure to patient.			3		
3. Are you going to take the temperature with a glass thermometer?	4	18			
4. Have you obtained the necessary supplies and equipment?	5	19			
5. Have you prepared the equipment for use?	6	21			
6. Check the level of mercury in the thermometer.			7		
7. Shake the level of mercury below 96° Fahrenheit.			8		
8. Place the thermometer in the patient's mouth by placing it under the tongue and deeply into the area.			9		
9. Request patient to keep mouth closed			10		
10. Leave thermometer in place from 3-5 minutes for glass thermometer or 10-20 seconds for electric thermometer.			11		
11. Remove thermometer, holding top end between thumb and index finger.			12		
12. Wipe thermometer with tissue from top to bottom.			13		

TASK ELEMENTS	Decisions		Go to Step	Learning Content	Tools, References, Work Aids
	Yes	No			
13. Read thermometer: glass to the nearest 0.2 degree of accuracy, electric to the nearest actual digital reading.			14		
14. Return thermometer to holder.			15		
15. Record temperature appropriately.			16		
16. Have you cleaned the thermometer?	17	23			
17. Return supplies and equipment to proper storage.			EOT		
18. Take the temperature with an electric thermometer.			4		
19. Do you know what supplies and equipment are needed?	20	24			
20. Collect the necessary supplies and equipment.			5		
21. Do you know how to prepare the supplies and equipment for taking temperature?	22	26			
22. Prepare supplies and equipment for taking temperature.			8		
23. Clean the thermometer: Glass thermometer place in alcohol solution Electric thermometer remove disposable cover			17		
24. Review your procedure manual on how to take temperature.			25		
25. Consult your supervisor for the location of supplies and equipment.			20		
26. Review your procedure manual on how to prepare for taking a temperature.			22		

TASK ANALYSIS GUIDE

I. Task Statement:

Take a Rectal Temperature

II. Task Performance Cues:

III. Task Performance Procedures:

A. When a decision must be made, indicate alternatives as "yes-no" answers to questions.

B. List performance steps by most frequently occurring sequence.

TASK ELEMENTS	Decisions		Go to Step	Learning Content	Tools, References, Work Aids
	Yes	No			
1. Wash hands.			2		
2. Does the patient need special attention?	26	3			
3. Greet patient.			4		
4. Have you obtained rectal thermometer to take the temperature?	5	28			
5. Explain procedure to patient.			6		
6. Is the mercury level below 96°F on the thermometer?	7	30			
7. Obtain some type of lubricant. (mineral oil, jelly)			8		
8. Remove lubricant from container with applicator stick..			9		
9. Place lubricant on piece of gauze.			10		
10. Hold thermometer by top end and lubricate bulb end of thermometer.			11		
11. Position patient in Sim's position.			12		
12. Drape patient to cover body except rectal area.			13		
13. Maintain patient's privacy and warmth.			14		

TASK ELEMENTS	Decisions		Go to Step	Learning Content	Tools, References, Work Aids
	Yes	No			
14. Make sure rectum is free of feces.			15		
15. Have you inserted thermometer into rectum?	16	31			
16. Hold thermometer in place to protect patient from harm caused from broken thermometer.			17		
17. Leave thermometer in place for ________ minutes.			18		
18. Remove thermometer from rectum and clean with gauze or tissue.			19		
19. Read the temperature to the nearest 0.2 degree.			20		
20. Wash your hands.			21		
21. Record the temperature on appropriate record.			22		
22. Place Ⓡ over the recorded temperature to indicate it was rectal.			23		
23. Clean equipment and return to proper storage area.			24		
24. Make patient comfortable.			EOT		
25. Does the patient show any of the following signs: Comatose Confused	26	33			
26. Stay with the patient at all times to prevent patient from breaking off the thermometer in the rectum.			27		
27. Identify the patient.			4		
28. Are you going to use a glass thermometer?	29	34			
29. Obtain glass rectal thermometer that has the small bulb on end.			5		
30. Shake the mercury level of the thermometer below the 96°F reading.			7		
31. Take your left hand and lift upper buttock slightly so you can see the anus clearly.			32		
32. Hold the thermometer in the opposite hand (left), insert the lubricated bulb end into the rectum about 1½ inches. Ask the patient to take a deep breath to relax the rectal sphincter for ease of insertion.			16		

TASK ELEMENTS	Decisions		Go to Step	Learning Content	Tools, References, Work Aids
	Yes	No			
33. Is the patient a child?	26	3			
34. Obtain the electric rectal thermometer.			35		
35. Assemble the monitoring kit and the supply of disposable covers for the probe.			36		
36. Place clean cover on probe and turn machine 'on' to warm before measuring the temperature.			5		

TASK ANALYSIS GUIDE

I. Task Statement:

Take an Axillary Temperature

II. Task Performance Cues:

III. Task Performance Procedures:

A. When a decision must be made, indicate alternatives as "yes-no" answers to questions.

B. List performance steps by most frequently occurring sequence.

TASK ELEMENTS	Decisions		Go to Step	Learning Content	Tools, References, Work Aids
	Yes	No			
1. Wash hands.			2		
2. Greet patient and explain procedure.			3		
3. Are you going to use glass thermometer?	4	18			
4. Obtain any equipment needed.			5		
5. Remove the thermometer from storage container.			6		
6. Rinse thermometer with cold water if stored in antiseptic solution.			7		
7. Is the mercury level below 96°F on the thermometer?	8	21			
8. Have you checked the axilla (armpit) to make sure its dry?	9	22			
9. Place the thermometer in the center of the armpit. Hold the patient's arm tightly against his chest. Rest the arm on the chest.			10		
10. Leave the thermometer in place for 10 minutes.			11		
11. Stay with the patient to make sure the thermometer doesn't slip.			12		
12. Remove the thermometer from armpit and clean with gauze or tissue if necessary.			13		

TASK ELEMENTS	Decisions		Go to Step	Learning Content	Tools, References, Work Aids
	Yes	No			
13. Read the temperature to the nearest 0.2 degree.			14		
14. Record the temperature on the appropriate record.			15		
15. Place an A over temperature reading to indicate that it was by axillary method.			16		
16. Clean equipment and return to proper storage area.			17		
17. Make patient comfortable.			EOT		
18. Obtain an electric thermometer.			19		
19. Assemble the monitoring kit and the supply of disposable covers for the probe.			20		
20. Place clean cover on probe and turn machine 'on' to warm before measuring the temperature.			8		
21. Shake the mercury level of the thermometer below 96°F.			8		
22. Gently pat dry the armpit before taking the temperature.			9		

TASK ANALYSIS GUIDE

I. Task Statement:

Take the pulse rate of person (patient)

II. Task Performance Cues:

Emergency has occurred (accident or illness)
Upon request
Upon doctor's orders

III. Task Performance Procedures:

A. When a decision must be made, indicate alternatives as "yes-no" answers to questions.

B. List performance steps by most frequently occurring sequence.

TASK ELEMENTS	Decisions		Go to Step	Learning Content	Tools, References, Work Aids
	Yes	No			
1. Obtain a watch or timepiece that has a second hand.			1a		
1a. Wash hands.			2		
2. Greet the patient.			2a		
2a. Explain the procedure to patient.			3		
3. Are you going to take the pulse over one of four appropriate arteries?	4	11			
4. Have you located the artery over which you will take the pulse rate?	5	18			
6. Place three middle fingertips over the appropriate artery.			7		
7. Count the pulsations for a specific period of time--usually 60 seconds.			8		
8. Note the rate of the pulse in number of beats per minute.			9		
9. Have you noted the strength of the pulse beat?	10	20			
10. Have you noted the rhythm of the beat?	10a	21			
10a. Record pulse rate describing its strength & rhythm.			10b		
10b. Clean and return any equipment to its proper storage.			EOT		

TASK ELEMENTS	Decisions		Go to Step	Learning Content	Tools, References, Work Aids
	Yes	No			
11. Have you collected the equipment needed to take an apical pulse rate?	12	22			
12. Have you positioned the patient to provide privacy, warmth and comfort before taking apical pulse rate?	13	24			
13. Warm stethoscope with hands.			4		
14. Have you place diaphragm of stethoscope over apex of heart?	15	26			
15. Insert earpieces of stethoscope in ears with the bend forward in the ears.			16		
16. Listen for heart sound.			17		
17. Count beats of heart for 60 seconds.			8		
18. Do you know where to locate one of the following arteries: radial, temporal, carotid, and femoral?	19	27			
19. Locate the artery over which pulse will be counted.			5		
20. Describe the rhythm of the beat as regular (even beat) or irregular (uneven beat).			10a		
21. Describe the strength of the beat as strong (good force) or weak (poor force).			10		
22. Obtain stethoscope and antiseptic gauze from storage area.			23		
23. Clean ear piece and diaphragm of stethoscope with antiseptic gauze.			12		
24. Place patient in supine position.			25		
25. Drape patient to expose chest area over apex of the heart.			13		
26. Place diaphragm of stethoscope over the apex of the heart just to theleft of the sterum.			15		
27. Locate the arteries in the following positions:					
radial artery - in wrist at the base of the thumb					
temporal artery - just anterior to or in front of the ear					
carotid - on the front side of the neck					
femoral - in the groin			19		

TASK ANALYSIS GUIDE

I. **Task Statement:**
Take the patient's respiration rate.

II. **Task Performance Cues:**
Patient has difficulty in breathing, bluish skin color, dizziness
Emergency has occured
Doctor's orders

III. **Task Performance Procedures:**

A. When a decision must be made, indicate alternatives as "yes-no" answers to questions.

B. List performance steps by most frequently occurring sequence.

TASK ELEMENTS	Decisions		Go to Step	Learning Content	Tools, References, Work Aids
	Yes	No			
1. Obtain a watch or timepiece that has a second hand.			1a		
1a. Wash hands.			1b		
1b. Greet the patient.			2		
2. Make patient at rest.			3		
3. Have you distracted patient so unaware that respiration rate is being counted?	4	10			
4. Are you going to observe the rise and fall of the chest to determine the respiration rate?	5	11			
5. Do you know how to count the number of the rise and fall of the chest per minute.	6	12			
6. Count the respirations per minute.			7		
7. Have you observed the depth of breathing?	8	13			
8. Have you observed the rhythm of breathing.	9	14			
9. Record the respiration rate describing the depth and rhythm of respiration.			EOT		
10. Pretend to take the patient's pulse to distract the patient.			4		
11. Lay your hand on the chest so you can feel his/her abdomen rise and fall.			5		

TASK ELEMENTS	Decisions		Go to Step	Learning Content	Tools, References, Work Aids
	Yes	No			
12. Count the rise and fall of the chest as one respiration.			6		
13. Describe the depth of breathing as deep, shallow, or normal.			8		
14. Describe the rhythm of breathing as rapid, slow or regular.			9		

TASK ANALYSIS GUIDE

I. Task Statement:

Take a patient's blood pressure manually

II. Task Performance Cues:

Emergency has occurred, patient has had accident or become ill
Upon request
Upon doctor's orders

III. Task Performance Procedures:

A. When a decision must be made, indicate alternatives as "yes-no" answers to questions.

B. List performance steps by most frequently occurring sequence.

TASK ELEMENTS	Decisions		Go to Step	Learning Content	Tools, References, Work Aids
	Yes	No			
1. Wash hands.			2		
2. Greet the patient.			3		
3. Explain procedure to patient.			4		
4. Obtain stethoscope, sphygmomanometer, pad and pencil.			5		
5. Have you positioned the patient in a supine position?	6	23			
6. Do you have the correct blood pressure cuff?	7	24			
7. Attach blood pressure cuff at approximately heart level and two inches above elbow. Make sure you can see gauge.			8		
8. Attach tubes from blood pressure cuff to air pump of sphygmomanometer.			9		
9. Place diaphram of stethoscope over the brachial artery.			10		
10. Close valve on air pump.			11		
11. Inflate cuff to a minimum of 180mm of mercury			12		
12. Inform patient cuff may cause some tingling.			13		
13. Open valve of air bulb so pressure is slowly released.			14		

TASK ELEMENTS	isions		Go to Step	Learning Content	ls, References, Work Aids
	Yes	No			
14. Observe mercury column while carefully listening to the pulse sound.			15		
15. Record the valve on mercury scale when the mercury begins to fluctuate and the first sound is heard.			16		
16. Continue to decrease the pressure slowly.			17		
17. Record value to the nearest unit on the mercury scale when mercury ceases to fluctuate and the last sound is heard.			18		
18. Have you described any unusual aspects of blood pressure?	19				
19. Repeat process to check recording.			20		
20. Remove the equipment from the arm.			21		
21. Return equipment to storage.			22		
22. Record the blood pressure describing any unusual aspects.			EOT		
23. Place patient in sitting position so arm is at outstretched position on bed or chair arm.			6		
24. Locate a cuff appropriate to the size of the patient's arm.			7		

Common Sub Tasks for Domain

Vital Signs

	Take a temperature			Take a pulse	Take a respiration rate	Take blood pressure
	Oral	Rectal	Axillary			
1. Obtain equipment	(4,19,20, 25)	(4,7,29,34)	(3,4,18)	(1,11,22)	(1)	(4,6,24)
2. Wash hands	(1)	(1,20)	(1)	(1a)	(1a)	(1a)
3. Greet Patient	(1a)	(2,3,25,27 33)	(2)	(2)	(1b)	(2)
4. Prepare equipment for test	(3,5,6,7, 21,22,23, 26)	(6,8,9,10, 28,30,35, 36)	(5,6,7,19, 20,21)	(13,23)		(8)
5. Prepare patient for test	(2,24)	(5,11,12, 13,14)	(8,22)	(2a,3,4,12,24,25)	(2,3)	(3,5,12,23)
6. Take vital signs	(8,9,10, 11,12,13, 18)	(15,16,17, 18,19,26 31,32)	(9,10,11,12, 13)	(6,7,8,9,10,14,15 16,17,18,19,20, 21,26,27)	(4,5,6,7,8,10,11,12, 13,14)	(7,9,10,11,13,14, 16,19,20)
7. Record the test	(15)	(21,22)	(14,15)	(10a)	(9)	(15,17,18,22)
8. Discard and replace equipment	(14,16,17)	(23)	(16)	(10b)		(21)
9. Insure patient's comfort		(24)	(17)			

Content Identification Sheet

Domain: Vital Signs
Pre-Requisite: Handwash, Communicate with Patient, Medical Asepsis
Task: Take a Temperature
*Elements from task analysis

Sub Task	Cell 1 Cognitive knowledge (generalizable) to all tasks in the domain	Cell 2 Cognitive knowledge specific to a task in the domain	Cell 3 Skills (transferrable) common to all tasks in the domain	Cell 4 Skills specific to a task in the domain
1. Obtain equipment oral*(4,19,20, 25) rectal*(4,7, 29,34) axillary*(3,4, 18)	Concepts and rules for equipment 1. Clean equipment a. Sterilization b. Non sterilization 2. Safe working order a. Broken equipment b. Missing parts c. Leaks d. Assembly techniques 3. Selection of equipment a. Size b. Type c. Identification 4. Location of Equipment a. Facility policy	Concept and rules for: 1. Types of thermometers a. Glass b. Electric 2. Methods of taking temperature a. Oral b. Rectal c. Axillary	1. Perform cold sterilizatio 2. Assemble equipment 3. Obtain pad and pencil 4. Obtain timepiece with second hand	1. Obtain thermometer a. Glass b. Oral c. Rectal d. Axillary holder, alcohol and cotton pad
2. Wash hands oral*(1) rectal*(1,20) axillary*(1)	1. Review concepts and rules on medical asepsis a. Cause (microorganisms) b. Prevention c. Aseptic technique 2. Review rules for handwashing a. 30 second technique b. 2 minute technique		1. Perform aseptic technique when giving patient care 2. Perform 30 second handwash	

Task: Take a Temperature

Sub Task	Cell 1 Cognitive knowledge (generalizable) to all tasks in the domain	Cell 2 Cognitive knowledge specific to a task in the domain	Cell 3 Skills (transferrable) common to all tasks in the domain	Cell 4 Skills specific to a task in the domain
3. Greet patient oral*(1a) rectal*(2,3,25, 27,33) axillary*(2)	Concepts and rules for: 1. Communication skills a. Body language b. Verbal communication 2. Human relation skills a. Assessment of patient's mental condition b. Assessment of patient's mental attitude 3. Determination of patient's physical condition a. Signs and symptoms b. Isolation/non-isolation 4. Privacy 5. Identification of patient a. Name tags b. Verbal c. Supervisor	1. Concepts and rules for taking a temperature	1. Verbally greet patient 2. Identify patient 3. Insure patient's privacy 4. Explain procedure	1. Explain procedure for taking temperature a. oral b. rectal c. axillary
4. Prepare equipment for test oral*(3,5,6,7, 21,22,23,26) rectal*(6,8,9, 10,28,30,35, 36) axillary*(5,6, 7,19,20,21)	Concepts and rules for: 1. Purpose of equipment 2. Method of assembling equipment 3. Safety in the use of equipment 4. Precision and accuracy in use of equipment	Concepts and rules for: 1. Assembling equipment for taking a temperature a. Glass b. Electric 2. Cleaning thermometer 3. Reading and use of thermometer 4. Safety rules for using thermometer a. Glass b. Electric		1. Clean thermometer 2. Prepare thermometer for testing

Page 3
Task: Take a Temperature

Sub Task	Cell 1 Cognitive knowledge (generalizable) to all tasks in the domain	Cell 2 Cognitive knowledge specific to a task in the domain	Cell 3 Skills (transferrable) common to all tasks in the domain	Cell 4 Skills specific to a task in the domain
5. Prepare patient for test oral*(2,24) rectal*(5,11, 12,13,14) axillary*(8.22)	Concepts and rules for: 1. Positioning a. Patient 2. Safety 3. Taking vital signs of patient with external complications (bandages, cast, mechanical devises, dressings and prothesis) 4. Privacy		1. Insure privacy 2. Insure patient comfort 3. Insure patient's safety	1. Position patient to take temperature a. Oral b. Rectal c. Axillary
6. Take vital signs	1. Concept of vital signs a. Temperature b. Pulse c. Respiration rate d. Blood pressure 2. Anatomy and Physiology a. Circulatory System (1) organs/assessory organs (2) physiology of system (3) type of major vessels (4) medical terminology needed for charting b. Respiratory System (1) organs/assessory organs (2) physiology of system (3) concept of respiration, respiratory rate c. Integumentary System (1) organs/assessory organs (2) physiology of system (3) medical terminology d. Nervous System (1) area that controls vital signs (2) medical terminology (cont.)	1. Concept of temperature a. variables effecting temperature 2. Concept of normal values for body temperature a. Adult b. Child c. Method (1) oral (2) rectal (3) axillary 3. Concept and rules for reading a thermometer a. unit of measurement		1. Take oral temperature 2. Take rectal temperature 3. Take axillary temperature

Page 4
Task: Take a temperature

Sub Task	Cell 1 Cognitive knowledge (generalizable) to all tasks in the domain	Cell 2 Cognitive knowledge specific to a task in the domain	Cell 3 Skills (transferrable) common to all tasks in the domain	Cell 4 Skills specific to a task in the domain
	3. Concept of interrelationship of the body's systems 4. Concept and rules for reading instruments a. Understand degree b. Metric system c. Time 5. Concept of ethics and legality of collecting data a. Accuracy b. Complete description 6. Concept of normal values a. Basis of normal b. Variation patterns			
7. Record the test oral*(15) rectal*(21,22) axillary*(14,15)	1. Concepts and rules for: a. Forms used b. Accuracy c. Legality d. Ethics e. Medical terminology (terms, abbreviations) f. Metric system g. Math calculations (addition, subtraction, division - 3 digits) h. Reading level (8th grade)	1. Concept abnormal temperature 2. Rules for reporting abnormal temperature		1. Record temperature a. Graph b. Chart
8. Discard and replace equipment oral*(14,16,17) rectal*(23) axillary*(16)	Concept and rules on: 1. Aseptic technique a. Sterilization b. Non-sterilization 2. Concept of disposable vs. non-disposable 3. Method of disposal (cont.)	1. Concept of non-sterilization for thermometer a. Soap and water b. Chemical 2. Concept and rules for storing thermometers		1. Clean and store thermometer 2. Discard disposables

Sub Task	Cell 1 Cognitive knowledge (generalizable) to all tasks in the domain	Cell 2 Cognitive knowledge specific to a task in the domain	Cell 3 Skills (transferrable) common to all tasks in the domain	Cell 4 Skills specific to a task in the domain
	4. Method of cleaning a. Dry b. Wet c. Heat d. Chemical 5. Rules for handling damaged equipment			
9. Insure patient's comfort oral*(24) rectal*(17)	1. Concept and rules on personal comfort a. Personal needs b. Positioning c. Privacy d. Environmental needs (1) room temperature (2) light (3) drafts (4) cleanliness of room		1. Provide for patient's comfort	

Content Identification Sheet

Domain: Vital Signs
Pre-Requisite: Handwash, Communicate with Patient
Task: Take Pulse Rate
*Elements from task analysis

Sub Task	Cell 1 Cognitive knowledge (generalizable) to all tasks in the domain	Cell 2 Cognitive knowledge specific to a task in the domain	Cell 3 Skills (transferrable) common to all tasks in the domain	Cell 4 Skills specific to a task in the domain
1. Obtain equipment *(11,22)	Concepts and rules for equipment 1. Clean equipment a. Sterilization b. Non sterilization 2. Safe working order a. Broken equipment b. Missing parts c. Leaks d. Assembly techniques 3. Selection of equipment a. Size b. Type c. Identification 4. Location of Equipment a. Facility policy	1. Concept and rules of: a. Methods (1) radial (2) femoral (3) temporal (4) apical		1. Obtain timepiece with second hand or stethoscope if doing apical pulse
2. Wash hands *(1a)	1. Review concepts and rules on medical asepsis a. Cause (microorganisms) b. Prevention c. Aseptic technique 2. Review rules for handwashing a. 30 second technique b. 2 minute technique		1. Perform aseptic technique when giving patient care 2. Perform 30 second handwash	

Task: Take Pulse Rate

Sub Task	Cell 1 Cognitive knowledge (generalizable) to all tasks in the domain	Cell 2 Cognitive knowledge specific to a task in the domain	Cell 3 Skills (transferrable) common to all tasks in the domain	Cell 4 Skills specific to a task in the domain
3. Greet patient *(2)	Concepts and rules for: 1. Communication skills a. Body language b. Verbal communication 2. Human relation skills a. Assessment of patient's mental condition b. Assessment of patient's mental attitude 3. Determination of patient's physical condition a. Signs and symptoms b. Isolation/non-isolation 4. Privacy 5. Identification of patient a. Name tags b. Verbal c. Supervisor	1. Concept and rules for taking pulse rate	1. Verbally greet patient 2. Identify patient	
4. Prepare equipment for test *(13,23)	Concepts and rules for: 1. Purpose of equipment 2. Method of assembling equipment 3. Safety in the use of equipment 4. Precision and accuracy in use of equipment	1. Concept and rules for using: a. Timepiece b. Stethoscope (1) temperature of metal		1. Warm stethoscope if doing apical pulse
5. Prepare patient for test *(2a,3,4, 12,24,25)	Concepts and rules for: 1. Positioning a. Patient 2. Safety 3. Taking vital signs of patient with external complications (bandages, cast, mechanical devises, dressings and prothesis) 4. Privacy		1. Insure privacy 2. Insure patient comfort 3. Insure patient's safety	1. Position patient to take pulse rate a. Radial b. Femoral c. Temporal d. Apical

Page 3
Task: Take Pulse Rate

Sub Task	Cell 1 Cognitive knowledge (generalizable) to all tasks in the domain	Cell 2 Cognitive knowledge specific to a task in the domain	Cell 3 Skills (transferrable) common to all tasks in the domain	Cell 4 Skills specific to a task in the domain
6. Take vital signs *(6,7,8,9, 10,14,15, 16,17,18, 19,20,21, 26,27)	1. Concept of vital signs a. Temperature b. Pulse c. Respiration rate d. Blood pressure 2. Anatomy and Physiology a. Circulatory System (1) organs/assessory organs (2) physiology of system (3) type of major vessels (4) medical terminology needed for charting b. Respiratory System (1) organs/assessory organs (2) physiology of system (3) concept of respiration, respiratory rate c. Integumentary System (1) organs/assessory organs (2) physiology of system (3) medical terminology d. Nervous System (1) area that controls vital signs (2) medical terminology 3. Concept of interrelationship of the body's systems 4. Concept and rules for reading instruments a. Understand degree b. Metric system c. Time 5. Concept of ethics and legality of collecting data a. Accuracy b. Complete description 6. Concept of normal values a. Basis of normal b. Variation patterns	1. Concept of pulse a. Variables affecting pulse rate b. Rhythm of pulse c. Strength of pulse 2. Concept of normal pulse rates for body a. Adult b. Child c. Method (1) radial (2) femoral (3) temporal (4) apical 3. Concept and rules for reading timepiece 4. Concept and rules for counting pulse rate a. Unit of measurement		1. Take a pulse rate a. Radial b. Femoral c. Temporal d. Apical 2. Observe pulse a. Strength b. Rhythm

Sub Task	Cell 1 Cognitive knowledge (generalizable) to all tasks in the domain	Cell 2 Cognitive knowledge specific to a task in the domain	Cell 3 Skills (transferrable) common to all tasks in the domain	Cell 4 Skills specific to a task in the domain
7. Record the test *(10a)	1. Concepts and rules for: a. Forms used b. Accuracy c. Legality d. Ethics e. Medical terminology (terms, abbreviations) f. Metric system g. Math calculations (addition, subtraction, division - 3 digits) h. Reading level (8th grade)	1. Concept of abnormal pulse rate 2. Rules for reporting abnormal pulse rate		1. Record pulse rate 2. Record: a. Strength b. Rhythm
8. Discard and replace equipment *(10b)	Concept and rules on: 1. Aseptic technique a. Sterilization b. Non-sterilization 2. Concept of disposable vs. non-disposable 3. Method of disposal 4. Metho of cleaning a. Dry b. Wet c. Heat d. Chemical 5. Rules for handling damaged equipment	1. Concept and rules for cleaning stethoscope a. Wet b. Dry 2. Rules for storing stethoscope		1. Clean and store a. Timepiece b. Stethoscope
9. Insure patient's comfort	1. Concept and rules on personal comfort a. Personal needs b. Positioning c. Privacy d. Environmental needs (1) room temperature (2) light (3) drafts (4) cleanliness of room		1. Provide for patient's comfort	

Content Identification Sheet

Domain: Vital Signs
Pre-Requisite: Handwash, Communicate with Patient, Medical Asepsis
Task: Take Respiration Rate
*Elements from task analysis

Sub Task	Cell 1 Cognitive knowledge (generalizable) to all tasks in the domain	Cell 2 Cognitive knowledge specific to a task in the domain	Cell 3 Skills (transferrable) common to all tasks in the domain	Cell 4 Skills specific to a task in the domain
1. Obtain equipment *(1)	Concepts and rules for equipment 1. Clean equipment a. Sterilization b. Non sterilization 2. Safe working order a. Broken equipment b. Missing parts c. Leaks d. Assembly technique 3. Selection of equipment a. Size b. Type c. Identification 4. Location of Equipment a. Facility policy			1. Obtain timepiece with second hand
2. Wash hands *(1a)	1. Review concepts and rules on medical asepsis a. Cause (microorganisms) b. Prevention c. Aseptic technique 2. Review rules for handwashing a. 30 second technique b. 2 minute technique		1. Perform aseptic technique when giving patient care 2. Perform 30 second handwash	

Task: Take Respiration Rate

Sub Task	Cell 1 Cognitive knowledge (generalizable) to all tasks in the domain	Cell 2 Cognitive knowledge specific to a task in the domain	Cell 3 Skills (transferrable) common to all tasks in the domain	Cell 4 Skills specific to a task in the domain
3. Greet patient *(1b)	Concepts and rules for: 1. Communication skills a. Body language b. Verbal communication 2. Human relation skills a. Assessment of patient's mental condition b. Assessment of patient's mental attitude 3. Determination of patient's physical condition a. Signs and symptoms b. Isolation/non-isolation 4. Privacy 5. Identification of patient a. Name tags b. Verbal c. Supervisor	1. Concepts and rules for taking temperature	1. Verbally greet patient 2. Identify patient	
4. Prepare equipment for test				
5. Prepare patient for test *(2,3)	Concepts and rules for: 1. Positioning a. Patient 2. Safety 3. Taking vital signs of patient with external complications (bandages, cast, mechanical devises, dressings and prothesis) 4. Privacy		1. Insure privacy 2. Insure patient comfort 3. Insure patient's safety	1. Position patient to take respiration rate

Page 3
Task: Take Respiration Rate

Sub Task	Cell 1 Cognitive knowledge (generalizable) to all tasks in the domain	Cell 2 Cognitive knowledge specific to a task in the domain	Cell 3 Skills (transferrable) common to all tasks in the domain	Cell 4 Skills specific to a task in the domain
6. Take vital signs	1. Concept of vital signs a. Temperature b. Pulse c. Respiration rate d. Blood pressure 2. Anatomy and Physiology a. Circulatory System (1) organs/assessory organs (2) physiology of system (3) type of major vessels (4) medical terminology needed for charting b. Respiratory System (1) organs/assessory organs (2) physiology of system (3) concept of respiration, respiratory rate c. Integumentary System (1) organs/assessory organs (2) physiology of system (3) medical terminology d. Nervous System (1) area that controls vital signs (2) medical terminology 3. Concept of interrelationship of the body's system 4. Concept and rules for reading instruments a. Understand degree b. Metric system c. Time 5. Concept of ethics and legality of collecting data a. Accuracy b. Complete description 6. Concept of normal values a. Basis of normal b. Variation patterns	1. Concept of respiration rate a. Variables affecting respiration rate b. Rhythm and strength 2. Concept of normal values for respiration rate a. Adult b. Child c. Method (1) Visual (2) Hand touch 3. Concept and rules for counting respiration rate		1. Take respiration rate 2. Observe a. Strength b. Rhythm

Task: Take Respiration Rate

Sub Task	Cell 1 Cognitive knowledge (generalizable) to all tasks in the domain	Cell 2 Cognitive knowledge specific to a task in the domain	Cell 3 Skills (transferrable) common to all tasks in the domain	Cell 4 Skills specific to a task in the domain
7. Record the test *(9)	1. Concepts and rules for: a. Forms used b. Accuracy c. Legality d. Ethics e. Medical terminology (terms, abbreviations) f. Metric system g. Math calculations (addition, subtraction, division - 3 digits) h. Reading level (8th grade)	1. Concept of abnormal respiration rate 2. Rules for reporting abnormal respiration rate		1. Record respiration rate 2. Record a. Strength b. Rhythm

Content Identification Sheet

Domain: Vital Signs
Pre-Requisite: Handwash, Communicate with Patient, Medical Asepsis
Task: Take Blood Pressure
*Elements from task analysis

Sub Task	Cell 1 Cognitive knowledge (generalizable) to all tasks in the domain	Cell 2 Cognitive knowledge specific to a task in the domain	Cell 3 Skills (transferrable) common to all tasks in the domain	Cell 4 Skills specific to a task in the domain
1. Obtain equipment *(4,6,24)	Concepts and rules for equipment 1. Clean equipment a. Sterilization b. Non sterilization 2. Safe working order a. Broken equipment b. Missing parts c. Leaks d. Assembly techniques 3. Selection of equipment a. Size b. Type c. Identification 4. Location of Equipment a. Facility Policy	Concepts and rules for: 1. Types of sphygmomanometer a. Manual b. Automatic c. Anaroid d. Mercury 2. Selection of cuff size a. Adult b. Child	1. Perform cold sterilization 2. Assemble equipment 3. Obtain pad and pencil 4. Obtain timepiece with second hand	1. Obtain stethoscope 2. Obtain sphygmomanometer a. Anaroid b. Mercury c. Manual d. Automatic
2. Wash hands *(1)	1. Review concepts and rules on medical asepsis a. Cause (microorganisms) b. Prevention c. Aseptic technique 2. Review rules for handwashing a. 30 second technique b. 2 minute technique		1. Perform aseptic technique when giving patient care 2. Perform 30 second handwash	
3. Greet patient *(2)	Concepts and rules for: 1. Communication skills a. Body language b. Verbal communication (cont.)	1. Concept and rules for taking blood pressure	1. Verbally greet patient 2. Identify patient 3. Insure patient's privacy 4. Explain procedure	1. Explain procedure for taking blood pressure

Page 2
Task: ake Blood Pressure

Sub Task	Cell 1 Cognitive knowledge (generalizable) to all tasks in the domain	Cell 2 Cognitive knowledge specific to a task in the domain	Cell 3 Skills (transferrable) common to all tasks in the domain	Cell 4 Skills specific to a task in the domain
	2. Human relation skills a. Assessment of patient's mental condition b. Assessment of patient's mental attitude 3. Determination of patient's physical condition a. Signs and symptoms b. Isolation/non-isolation 4. Privacy 5. Identification of patient a. Name tags b. Verbal c. Supervisor			
4. Prepare equipment for test *(8)	Concepts and rules for: 1. Purpose of equipment 2. Method of assembling equipment 3. Safety in the use of equipment 4. Precision and accuracy in use of equipment	Concepts and rules for: 1. Assembling equipment for taking blood pressure a. Stethoscope b. Sphygmomanometer 2. Clean equipment 3. Reading and use of equipment 4. Safety rules for using equipment a. Stethoscope b. Sphygmomanometer		1. Clean equipment 2. Assemble equipment for testin blood pressure
5. Prepare patient for test *(3,5,12,23)	Concepts and rules for: 1. Positioning a. Patient 2. Safety 3. Taking vital signs of patient with external complications (bandages, cast, mechanical devises, dressings and prothesis) 4. Privacy		1. Insure privacy 2. Insure patient comfort 3. Insure patient's safety	1. Position patien for blood pressure testing

Page 3
Task: Take Blood Pressure

Sub Task	Cell 1 Cognitive knowledge (generalizable) to all tasks in the domain	Cell 2 Cognitive knowledge specific to a task in the domain	Cell 3 Skills (transferrable) common to all tasks in the domain	Cell 4 Skills specific to a task in the domain
6. Take vital signs *(7,9,10, 11,13,14,16, 19,20)	1. Concept of vital signs a. Temperature b. Pulse c. Respiration rate c. Blood pressure 2. Anatomy and Physiology a. Circulatory System (1) organs/assessory organs (2) physiology of system (3) type of major vessels (4) medical terminology needed for charting b. Respiratory System (1) organs/assessory organs (2) physiology of system (3) concept of respiration, respiratory rate c. Integumentary System (1) organs/assessory organs (2) physiology of system (3) medical terminology d. Nervous System (1) area that controls vital signs (2) medical terminology 3. Concept of interrelationship of the body's systems 4. Concept and rules for reading instruments a. Understand degree b. Metric system c. Time 5. Concept of ethics and legality of collecting data a. Accuracy b. Complete description 6. Concept of normal values a. Basis of normal b. Variation patterns	1. Concept of blood pressure a. Variables affecting blood pressure b. Rhythm and strength 2. Concept of normal values for blood pressure a. Adult b. Child 3. Concept and rules for reading sphygmomanometer a. Aneroid b. Mercury		1. Take blood pressure a. Aneroid b. Mercury c. Manual d. Automatic

Page
Task: Take Blood Pressure

Sub Task	Cell 1 Cognitive knowledge (generalizable) to all tasks in the domain	Cell 2 Cognitive knowledge specific to a task in the domain	Cell 3 Skills (transferrable) common to all tasks in the domain	Cell 4 Skills specific to a task in the domain
7. Record the test *(15,17,18, 22)	1. Concepts and rules for: a. Forms used b. Accuracy c. Legality d. Ethics e. Medical terminology (terms, abbreviations) f. Metric system g. Math calculations (addition, subtraction, division - 3 digits) h. Reading level (8th grade)	1. Concept of abnormal blood pressure 2. Rules for reporting abnormal temperature		1. Record blood pressure
8. Discard and replace equipment	Concept and rules on: 1. Aseptic technique a. Sterilization b. Non-sterilization 2. Concept of disposable vs. non-disposable 3. Method of disposal 4. Method of cleaning a. Dry b. Wet c. Heat d. Chemical 5. Rules for handling damaged equipment	1. Rules for cleaning and storing stethoscope and sphygmomanometer		1. Clean and store stethoscope and sphygmomanomete

Data Sheet A
Vital Signs Domain
Specific for Each Task

1. Take a temperature
   - A. Type
     - (1) Manual
     - (2) Electric
   - B. Method
     - (1) Oral
     - (2) Rectal
     - (3) Axillary
   - C. Time
     - (1) 3 minutes
     - (2) 5 minutes
   - D. Measurement
     - (1) °C
     - (2) °F
     - (3) variation from accepted value ±
2. Take a pulse
   - A. Method
     - (1) Radial
     - (2) Femoral
     - (3) Temporal
     - (4) Apical
   - B. Time
     - (1) 30 sec.
     - (2) 60 sec.
   - C. Measurement
     - (1) Count/min.
     - (2) Variation from accepted value ±
3. Take a respiration rate
   - A. Method
     - (1) Visual
     - (2) Hand-touch
   - B. Time
     - (1) 60 sec.
   - C. Measurement
     - (1) Count/min.
     - (2) Variations
4. Take a blood pressure
   - A. Type
     - (1) Manual
     - (2) Anaroid
     - (3) Mercury
   - B. Method
     - (1) Arm
     - (2) Leg
   - C. Kit
     - (1) Assembled kit
     - (2) Nonassembled kit

Data Sheet B

Vital Signs Domain

General for Each Sub Task

1. Obtain equipment
   - A. Clean equipment
     - (1) Non-sterilization
     - (2) Wet-chemical
   - B. Safe Working Order
     - (1) Broken equipment
     - (2) Leaks
     - (3) Assembling problem
   - C. Selection of equipment
     - (1) Proper size
     - (2) Proper type
     - (3) Obtain all necessary equipment

2. Wash hands
   - A. Time
     - (1) 30 seconds
     - (2) 2 minutes

3. Greet patient
   - A. Communication
     - (1) Verbal
     - (2) Body Language non-verbal
   - B. Identification
     - (1) Verbal
     - (2) Name tag
     - (3) Supervisor
   - C. Patient
     - (1) Child
     - (2) Adult

4. Prepare equipment for test
   - A. Condition of equipment
     - (1) Safe
     - (2) Not Safe
     - (3) Accurate measuring devise
     - (4) Inaccurate measuring devise
     - (5) Clean
     - (6) Dirty

5. Prepare patient for test
   - A. Position
     - (1) Lateral
     - (2) Prone
     - (3) Sitting upright
   - B. External complications
     - (1) Bandage on arm
     - (2) Cast on arm
     - (3) Brace on arm
   - C. Privacy
     - (1) Curtain
     - (2) Door

6. Take vital signs

7. Record the test
    - A. Forms
        - (1) Graph
        - (2) Charts
    - B. Medical Terminology
        - (1) Abbreviations
        - (2) Terms

8. Discard and replace equipment
    - A. Types
        - (1) Disposable
        - (2) Non-disposable
    - B. Method of Cleaning
        - (1) Wet
        - (2) Chemical

9. Insure patient's comfort
    - A. Personal needs
        - (1) Position
        - (2) Physical need
        - (3) Mental need
    - B. Environmental needs
        - (1) Room temperature
        - (2) Light
        - (3) Draft
        - (4) Cleanliness

Data Sheet C

Vital Signs Domain

Equipment and Supplies

A. Equipment

1. Glass thermometer (manual) oral
2. Glass thermometer (manual) rectal
3. Electric thermometer and kit
4. Thermometer holder with chemical
5. Stethoscope
6. Timepiece with second hand
7. Sphygmomanometer aneroid
8. Sphygmomanometer mercury
9. Bed
10. Chair
11. Proxy patient
12. Curtain for privacy
13. Door for privacy

B. Supplies

1. Soap
2. Towel
3. Tissue
4. Lubricant
5. Applicator stick
6. Gauze
7. Blanket
8. Chart (graph)
9. Chart (patient)
10. Cold water
11. Antiseptic gauze
12. Pad of paper
13. Pencil or pen

Domain Referenced Planning Sheet
Vital Signs

A. DRT Format

1. Domain: Vital Signs

2. Tasks in domain:
   a. Take a temperature
   b. Take a pulse
   c. Take respiration rate
   d. Take a blood pressure

3. Domain Descriptor: Take Vital Signs

4. Content limits for domain
   a. Content limits per tasks - see Data Sheet A
   b. Content limits per sub tasks - see Data Sheet B
   c. Content limits for equipment - see Data Sheet C

5. Criteria for evaluation

   All items on the following checklist must be acceptable to pass test. See attached checklists.

6. Test Stimulus Characteristics

   Each student will be given a nursing order, proxy patient, necessary supplies and equipment, plus the condition of the patient and environment. The test will be given in the lab. A sample combination of variables are given:

   Test 1

   1.A-1
   1.B-1
   1.C-1
   1.D-2
   2.A-1
   2.B-2
   3.A-1
   3.B-1
   4.A-3
   4.B-1
   4.C-1

   Data Sheet A

   1.A-1
   1.C-1
   1.C-2
   2.A-1
   3.A-1
   3.B-2
   3.C-1
   4.A-1
   4.A-3
   4.A-6
   5.A-3
   5.C-1
   7.A-2
   7.B-1
   8.A-2
   8.B-2
   9.A-3
   9.B-1

   Data Sheet B

   A.1
   A.4
   A.5
   A.6
   A.8
   A.10
   A.11
   B.1
   B.2
   B.3
   B.6
   B.9
   B.12
   B.13

   Data Sheet C

7. Test Response Characteristics

The student will take the vital signs as directed by a nursing order. The student's performance must be acceptable according to the evaluation checklist.

8. Student Instruction Sheet - Test I

Given a crying child, nursing order, and the following equipment and supply list; take the child's vital signs. You will chart the procedure on the patient's chart provided at bedside. Your performance will be evaluated according to the attached checklist. All items on the checklist must be acceptable to pass the test.

Equipment and Supply List

Proxy patient with nametag; oral, glass thermometer marked in °F; thermometer holder with chemical solution; mercury sphymomanometer with various sizes of cuffs; stethoscope; chair; privacy curtain; patient's chart; gauze; and timepiece with second hand.

B. Assessory Materials to be with Test

1. Student instruction sheet
2. Nursing order
3. Equipment and supply test
4. Checklist for evaluation
5. Teacher's note on how to set up lab area

Domain Referenced Test

Vital Signs

I. Student Instruction Sheet

You will be given a crying child, nursing order and the following equipment and supply list; take the child's vital signs. You will chart the procedure using correct abbreviations on the patient's chart which is provided. Your performance will be evaluated according to the attached checklist. All items on the checklist must be acceptable to pass the test.

II. Nursing Order

Take patient's, Jane Brown, oral temperature, radial pulse, respiration rate and blood pressure.

III. Equipment and Supply List

Equipment: Chair, dirty stethoscope, various sized cuffs for sphygmomanometer, mercury sphygmomanometer, timepiece with second hand.

Supplies: Oral, glass thermometer in °F, thermometer holder with chemical, soap, towel, tissue, gauze, patient's chart, pad of paper, pencil/pen.

IV. Checklist

See attached checklist

V. Chart

Obtain from instructor

110

Checklist for Vital Signs Domain

U S

____ ____ 1. Obtain equipment

____ ____ 2. Wash hands

____ ____ 3. Greet patient

____ ____ 4. Prepare equipment for test

____ ____ 5. Prepare patient for test

____ ____ 6. Perform test

____ ____ a. Temperature

____ ____ (1) Check level of mercury in thermometer; if above 96°F level must be lowered by shaking.

____ ____ (2) Place thermometer in patient's mouth.

____ ____ (a) Place under tongue

____ ____ (b) Place deep into area

____ ____ (c) Request patient to keep mouth closed

____ ____ (3) Leave thermometer in place from 3 to 5 minutes

____ ____ (4) Remove thermometer, holding top end between thumb and index finger

____ ____ (5) Wipe thermometer with tissue, making sure to wipe from top to bottom

____ ____ (6) Read thermometer and record value

____ ____ b. Pulse

____ ____ (1) Place three middle fingertips over the appropriate artery

____ ____ (2) Count the pulsations for specific period of time - usually 60 seconds

____ ____ (3) Note rate, force, and rhythmicity of beats

____ ____ (4) Record value

____ ____ c. Respiration

____ ____ (1) Take the pulse

____ ____ (2) Take respiration rate without patient being aware of procedure by:

____ ____ (3) Observing rate, depth, and rhythm of respiration

____ ____ (4) Record value

____ ____ d. Blood Pressure

____ ____ (1) Attach equipment to patient appropriately: Place cuff at approximately heart level, 2 inches above elbow; wrap cuff neatly around arm; secure cuff end with tape or adhesive

____ ____ (2) Attach tubes from blood pressure cuff to air pump or sphygomomanometer

U	S	
		(3) Adjust stethoscope position: arrange ear pieces: place diaphragm over brachial artery
		(4) Close valve on air pump
		(5) Inflate cuff to a minimum of 180 mm. of mercury and inform patient that this may cause some tingling
		(6) Open valve of air bulb - release pressure slowly
		(7) Observe mercury column and listen to pulse sound carefully. Record the value when the mercury begins to fluctuate and when the first sound is heard. If aneroid record when first sound is heard.
		(8) Continue to decrease pressure slowly
		(9) Record value when mercury ceases to fluctuate and when last sound is heard. If aneroid record when last sound is heard
		(10) Repeat process to check recording
		(11) Remove equipment from patient's arm
		(12) Record values on patient's chart
		7. Discard disposable supplies
		8. Clean and replace equipment
		9. Insure patient's comfort

APPENDIX C

C.1 Summary of Machine Shop Field Test 76

C.2 Sample: Welding Survey 78

C.3 Sample: Summary of Welding Survey 84

C.4 Sample: NCAVS Welding Matrix 85

C.5 Sample: Welding Purge Sheet for Tasks 86

C.6 Sample: Welding Course Plan 91

C.7 Distributive Education Management System . . . 99

Appendix C.1

SUMMARY OF MACHINE SHOP FIELD TEST
DOMAIN REFERENCED TEST FOR
THE DRILL OPERATIONS DOMAIN

Students:

Seventeen secondary vocational machine shop students field tested the Drill Operations domain referenced test prepared by Dr. Bill West. The students were all caucasian, varying in age from seventeen to nineteen.

The students were enrolled as juniors or seniors in their respective high schools for three class periods in addition to the three hour, five day per week machine shop course. The students had completed thirty weeks of the thirty-six week machine shop course when the field test was conducted.

Results:

Fifteen students of the seventeen successfully completed the ten performance tests comprising the domain referenced test for the drill operations domain. The two students not completing the test had a motorcycle accident which incapacitated them.

Conclusions:

Of the ten tests given, the "Bench Block" and the "One, Two, Three Blocks" were the most successful. The tasks that were required of the students were completed without any difficulty. These two projects provided the students with many different experiences. The flat plate exercise is adequate but could be improved.

Too much paperwork was involved in the testing. The students reported they were bored doing the required paperwork. So many of the questions asked were repeated too frequently. The prints for the projects were not well marked. For example, some of the arrows for a specific operation were drawn to the wrong hole.

Summary of Machine Shop Field Test

My total reaction to the domain referenced test was good. The material that was developed was comprehensive and of excellent quality.

Recommendations:

I plan to incorporate this unit into my 1979-1980 program. I suggest the paperwork be made as brief as possible. The excessive paperwork created problems for the students and teacher. The performance checklist created problems because of the difficulty of checking each student on each procedural step. The final product can be checked to determine the accuracy of many of the procedural steps. All prints should be carefully checked to make sure they are drawn correctly.

Before students take part in the field test, they should have been taught the content identified for the tasks of the domain. For example, the student had trouble with spot facing because the material had not been covered in class prior to the field test. It is important for the students to be exposed to the content identification and content limits before field testing the domain referenced test. The validity of the field test should be closely scrutinized if the students have not been exposed to the content prior to testing.

In regards to the flat plate test, possibly the students could drill on a project that they could keep and use. The test would then be more beneficial to the students.

I recommend the domain referenced test be reviewed and revised when appropriate. The material should be shared with machine shop instructors across the state. Additional domain referenced tests should be developed and disseminated to local machine shop instructors.

Submitted by
Virgil Rush, Instructor
Shirley Smalley, Curriculum Consultant

Appendix C.2

WELDING SURVEY

Name ________________________
Business ________________________
Position ________________________
Phone ________________________

NOTE: ALL ITEMS PERTAIN TO NEW CASTLE AREA VOCATIONAL SCHOOL, ONLY; AND ALL ANSWERS WILL BE KEPT STRICTLY CONFIDENTIAL. ANY ANSWERS OR COMMENTS MADE WILL NOT PLACE ANY OBLIGATION ON YOUR BUSINESS. THIS IS FOR GENERAL INFORMATION ONLY.

1. TOTAL NUMBER OF EMPLOYEES
   a. Number of full-time employees (35 hours/week or more) ________________
   b. Number of part-time employees (less than 35 hours/week) ________________
2. ESTIMATED TOTAL EMPLOYMENT IN (not including seasonal employees)
   1975 ____________
   1977 ____________
   1979 ____________
3. TOTAL NUMBER OF NEW EMPLOYEES HIRED IN THE LAST CALENDAR YEAR (1977)
   a. Number of new employees that filled newly created positions ____________
   b. Number of new employees that filled vacated positions ____________
   c. Number of new employees without prior experience ____________
4. TOTAL NUMBER OF EMPLOYEES CHANGED TO NEW JOBS OR POSITIONS WITHIN YOUR ORGANIZATION DURING THE CALENDAR YEAR 1977 ____________
5. WHEN YOU HAVE A JOB OPENING(S), WHICH OF THE FOLLOWING SOURCES DO YOU USE TO HIRE WORKERS? (Mark the spaces which are most appropriate for each item-a. through g.)

	Often	Sometimes	Never
a. State Employment Service	___	___	___
b. Private Employment Agencies.	___	___	___
c. Advertising and Want Ads	___	___	___
d. Friends and Relatives.	___	___	___
e. Direct Company Application (walk-ins).	___	___	___
f. School Cooperative Programs (DE. COE, etc.).	___	___	___
g. Other (Please describe ____________________)	___	___	___

6. WOULD HIGH SCHOOL COOPERATIVE VOCATIONAL PROGRAMS BE ATTRACTIVE TO YOU IN OBTAINING ADDITIONAL QUALIFIED EMPLOYEES? . . . . YES________ NO________

a. If above answer is "no," please identify changes/ additions needed to make high-school-trained personnel an attractive source of qualified employees. . . . . . . ________________

____

____

____

7. WOULD YOU CONSIDER PERMITTING A QUALIFIED VOCATIONAL STUDENT TO ENTER YOUR PLACE OF BUSINESS OR AREA OF ACTIVITY AS A WORKER IN ORDER TO GET THE EXPERIENCE IN AN OCCUPATION? . . . . YES________ NO________

8. WOULD YOU BE WILLING TO HAVE YOURSELF OR AN EMPLOYEE VISIT A CLASS(ES) IN A PUBLIC SCHOOL TO EXPLAIN YOUR OCCUPATION?. . . . . YES________ NO________

9. ARE THERE AREAS OF TRAINING EXPERIENCE NOT CURRENTLY IN THE PROGRAM THAT YOU FEEL THE PUBLIC SCHOOLS SHOULD PROVIDE? . . . . ________________

____

____

a. If answer is "yes," please explain . . . . ________________

____

10. HOW MANY STUDENTS WHO ARE ENROLLED IN HIGH SCHOOL COOPERATIVE VOCATIONAL PROGRAMS DO YOU HAVE WORKING IN YOUR BUSINESS?. . . . . ________________

11. HOW MANY STUDENTS WHO HAVE COMPLETED A HIGH SCHOOL COOPERATIVE VOCATIONAL PROGRAM DO YOU HAVE WORKING IN YOUR BUSINESS? . . . . ________________

Please complete this form.

Page 1 of 3

INFORMATION ABOUT BUSINESS OPERATION

List the number of people employed by your firm in the specific job titles listed below.

A. OCCUPATIONS IN YOUR FIRM	B. No. PRESENTLY EMPLOYED	C. JOB OPENING INFORMATION		D. TRAINING					
Job Titles Please list each different occupation in your firm or agency. Add descriptive words, classes, or grades that will clarify the nature of the job.	**Number** Total number of persons presently employed in each occupation listed.	CURRENT JOB OPENINGS No. of these jobs in your firm that are unoccupied or ready to fill immediately.	ANTICIPATED JOB OPENINGS Job openings expected in the next 12 months for which employees will be actively sought.	Check major source or type of training where employees acquired skills needed for each job listed in column A.					
	TOTAL	TOTAL		High School	OJT or Apprenticeship	Trade Technical School	Jr. College	College	Other
Example: Solderer	3	1	2	x					
Thermal and Arc Cutters									
A. Salvage Cutter									
B. Scrap Cutter									
C. General Cutting Hand (Oxy-fuel)									
D. Arc Air Cutter & Scarfing									
E. Plasma Cutting Mach.									
F. Automatic Cutting Mach.									
G. Track-Template Cutting Mach.									
Solderer (Below 800°F)									
A. Solderer, production									
B. Solderer, assembly									
C. Solderer furnace									
torch									
electronic									
ultrasonic									
D. Soldering Machine Operator									
Solderer (Silver above 800°F)									

A. Silver Solderer (hand)

B. Silver Solderer (furnace)

Please complete this form.

INFORMATION ABOUT BUSINESS OPERATION

List the number of people employed by your firm in the specific job titles listed below.

		C. JOB OPENING INFORMATION		D. TRAINING					
Job Titles Please list each different occupation in your firm or agency. Add descriptive words, classes, or grades that will clarify the nature of the job.	Number Total number of persons presently employed in each occupation listed.	CURRENT JOB OPENINGS No. of those jobs in your firm that are unoccupied or ready to fill immediately.	ANTICIPATED JOB OPENINGS Job openings expected in the next 12 months for which employees will be actively sought.	Check major source or type of training where employees acquired skills needed for each job listed in column A.					
	TOTAL	TOTAL		High School	OJT or Apprenticeship	Trade Technical School	Jr. College	College	Other
Example: Solderer	3	1	2	×					
Brazing (Above 800°F)									
A. Torch Brazer (hand)									
B. Brazer Machine Operator									
Welder-OxyAcetylene or Oxyfuel									
A. Oxyacetylene									
B. Oxyhydrogen									
C. Oxyfuel Production									
D. Other, specify									
Arc Welding (Stick Electrode)									
A. Arc Weld Tacker									
B. Arc Welder Fitter									
C. Arc Welder Production									
D. Arc Welder Certified									
E. Arc Welder Apprentice									
F. Arc Welder Prod. Line									
G. Arc Welder Apprentice Filler									
T.I.G. (G.T.A.W.)									
A. Welder Production									
B. Machine Repair									

Please complete this form.

INFORMATION ABOUT BUSINESS OPERATION

List the number of people employed by your firm in the specific job titles listed below.

		C. JOB OPENING INFORMATION		D. TRAINING					
Job Titles Please list each different occupation in your firm or agency. Add descriptive words, classes, or grades that will clarify the nature of the job.	**Number** Total number of persons presently employed in each occupation listed.	CURRENT JOB OPENINGS No. of those jobs in your firm that are unoccupied or ready to fill immediately.	ANTICIPATED JOB OPENINGS Job openings expected in the next 12 months for which employees will be actively sought.	Check major source or type of training where employees acquired skills needed for each job listed in column A.					
	TOTAL	TOTAL		High School	OJT or Apprenticeship	Trade Technical School	Jr. College	College	Other
Example: Solderer	3	1	2	x					
C. Tool and Die									
D. Gen. Repair Maintenance									
E. Welder Certified									
F. Welder Apprentice									
G. Welder Non-Ferrous Metals									
H. Welder (Gauge metals)									
M.I.G. (Automatic-Semi Automatic Wire Feeder) G.M.A.W.									
A. Welder Production									
B. Welder Fitter									
C. Welder Certified									
D. Welder Maintenance									
E. Welder Flux Cored Arc									
F. Welder Submerged Arc									
Resistance									
A. Resistance Spot Production									
B. Projection Machine									
C. Upset-Flash Machine									

Please complete this form.

Page 4 of 4

INFORMATION ABOUT BUSINESS OPERATION

List the number of people employed by your firm in the specific job titles listed below.

		C. JOB OPENING INFORMATION		D. TRAINING					
				Check major source or type of training where employees acquired skills needed for each job listed in column A.					
Job Titles Please list each different occupation in your firm or agency. Add descriptive words, classes, or grades that will clarify the nature of the job.	Number Total number of persons presently employed in each occupation listed. TOTAL	CURRENT JOB OPENINGS No. of those jobs in your firm that are unoccupied or ready to fill immediately. TOTAL	ANTICIPATED JOB OPENINGS Job openings expected in the next 12 months for which employees will be actively sought.	High School	OJT or Apprenticeship	Trade Technical School	Jr. College	College	Other
Example: Solderer	3	1	2	X					
Inspection-Supervision									
A. Welding Foreman									
B. Welding Supervisor									
C. Weld Inspector									
D. Weld Estimator									
E. Welding Technician									
F. Welding Salesman									
General									
Combination Welder									
Please Check areas of work.									
Number area by priority									
to indicate time spent.									
Arc ☐ Oxce ☐									
TIG ☐ MIG ☐									
Oxyfuel Cutting ☐									
Brazing & Soldering ☐									

SUMMARY REPORT OF COMMUNITY SURVEY

Dissemination Pattern:

1. Number of Businesses Surveyed	Size of Businesses with Returned Surveys			Number of Surveys Returned	% of Surveys Returned
	Large	Medium	Small		
54	9	5	4	18	33.3%

2. Type of Businesses Surveyed	Private	Public	Businesses from Manpower 6	Businesses from outside Region 6
	54	0	37	17

3. Businesses included in survey

- Welding Shops
- Machine Shops
- Industries
- Sheet Metal Shops

RESULTS OF COMMUNITY SURVEY:

Job Titles in Local Community	Number Presently Employed	Secondary/Vocational Training	Post Secondary Training
1. Arc welder	99	88	11
2. M.I.G. Welder	75	69	6
3. Resistance Welder	34	34	0
4. General Combination Welder	20	20	0
5. Therm and Arc cutters	20	11	9
6. T.I.G. Welder	15	13	2
7. Supervisor	13	13	0

WELDING LOCAL MATRIX

New Castle Area Vocational School

Program	Curricula	Course	Job Titles	Tasks	Course Core	Curricula Core	Program Core
Welding	Specialized	Thermal and Arc Welding	Thermal and Arc Welder	Tasks Common to Job Title	Tasks common to Thermal and Arc Welding	Tasks Common to Specialized Welding	
		Soldering Below 800°F			Tasks common to Soldering Below 800°F		
		Soldering Above 800°F			Tasks common to Soldering Above 800°F		
		Brazing Above 800°F			Tasks common to Brazing Above 800°F		
		Oxyacetylene Welding			Tasks common to Oxyacetylene Welding		
		Arc Welding	Arc Welder		Tasks common to Arc Welding		
		T.I.G.	T.I.G. Welder		Tasks common to T.I.G. Welding		
		M.I.G.	M.I.G. Welder		Tasks common to M.I.G. Welding		
		Resistance	Resistance Welder		Tasks common to Resistance Welding		
	General	Combination Welding	Combination Welder	Tasks common to job title	Tasks common to Combination Welding	Tasks Common to General Welding	
		Management	Welding Supervisor	Tasks common to job title	Tasks common to Management		

Appendix C.5
Welding Purge

Key: X - done
0 - not included in curriculum

Duty: Supervision, Training and Job Estimating	Production Welder	Arc Welder	M.I.G. Welder	Resistance Welder	General Combination Welder	Therm and Arc Cutters	T.I.G. Welder	Fitter Welder
1. Assign work to others								0
2. Plan and schedule work assignments								0
3. Prepare annual shop budgets	X							X
4. Write performance standards for jobs								0
5. Conduct oral safety briefings								0
6. Improve work methods		X	X	X	0	X	X	X
7. Estimate cost of repairs								0
8. Estimate labor and material costs of new fabrication								0
9. Prepare accident report								X
10. Plan and conduct on-the-job training for employees								X
11. Interview job applicants								X
12. Receive and record new shipment of supplies								X
13. Read and interpret detail sketch from blueprint		X	X	0	X	X	X	X
Duty: Set Up, Tack and Weld Metal Processing Projects								
14. Select metals for fabrication from blueprint specifications		X	X	X	X	0	X	X
15. Draw sketches for shop or field projects		0	X		X		X	X
16. Research technical publications for welding standards								0
17. Set up and tack weld tee joints	X	X	0		X		X	
18. Set up and tack weld open butt joints	X	X	0		X		X	
19. Set up and tack weld corner or edge joints	X	X	0		X		X	

Welding Purge

		Production Welder	Arc Welder	M.I.G. Welder	Resistance Welder	General Combination Welder	Therm and Arc Cutters	T.I.G. Welder	Fitter Welder
20.	Set up and tack weld in the flat position	X	0	X		X		X	
21.	Set up and tack weld in the horizontal position	X	0	X		X		X	
22.	Set up and tack weld in the overhead position	X	0	X		X		X	
23.	Set up and tack weld in the vertical position	X	0	X		X		X	
24.	Set up and tack weld lap joints		0	X		X		X	
25.	Set up and make a plug or slot weld		0	X		X		X	
26.	Clamp metal work to prevent distortion and tack weld		0	X		X		X	
Duty:	Clean, Test and Classify Metals								
27.	Examine and identify metals		X	X		0		X	X
28.	Clean metals with solvent	X	X			0		X	X
29.	Test metals using guided bend tester								0
30.	Inspect welds using dye penetrant methods		X	X		0		X	X
Duty:	Operating Auxiliary Equipment and Tools								
31.	Chip slag using chipping hammer	X	X			0	X		X
32.	Cut materials with hand hacksaws		X	0		X	X	X	X
33.	Drill metal using power drilling equipment		X	X	X	0	X	X	X
34.	Grind metal with power equipment	X	X	X	X	0	X	X	X
35.	Cut metal with power hacksaw	X	X	X	X	0	X	X	X
36.	Wire brush with power equipment	X	X	X		0		X	X
37.	Finish metal surfaces with hand tools	X	X	X	0	X		X	X

Welding rge

		Production Welder	Arc Welder	M.I.G. Welder	Resistance Welder	General Combination Welder	Therm and Arc Cutters	T.I.G. Welder	Fitter Welder
38.	Shear and punch metal shapes using ironworking machine(s)		0	X	X	X		X	X
Duty:	Operating Gas Welding Equipment								
39.	Set up portable or stationary oxy-fuel equipment					0	X		X
40.	Braze ferrous and non ferrous metals with gas equipment					0			X
41.	Change oxygen, acetylene or MAPP gas cylinders					0			X
42.	Clean welding and cutting tips on oxy-fuel equipment					0	X		X
43.	Cut carbon steels with oxy-acetylene equipment					0	X		X
44.	Forge metals with gas equipment					0			X
45.	Gas weld cast iron					0			X
46.	Gas weld copper or copper alloys					0			X
47.	Silver braze copper pipe joints					0			X
48.	Gas weld carbon steels					0			X
49.	Braze repair castings					0			X
50.	Lead solder ferrous and nonferrous metals with gas equipment					0			X
51.	Perform soap and water and/or submerged leak test and repair gas welding equipment		X	0		X		X	X
52.	Shape metals using gas welding equipment					0			X
53.	Silver braze ferrous metals with gas equipment					0			X
54.	Silver braze nonferrous metals with gas equipment					0			X
55.	Remove distortion using gas welding equipment					0			X

Welding Purge

	Production Welder	Arc Welder	M.I.G. Welder	Resistance Welder	General Combination Welder	Therm and Arc Cutters	T.I.G. Welder	Fitter Welder
Duty: Operating Metallic and Tungsten Inert Gas Welding Equipment (TIG), (MIG)								
56. Weld aluminum or aluminum alloys with BMAW (MIG) equipment			X		0			X
57. Weld aluminum or aluminum alloys with GTAW (TIG) equipment					0		X	X
58. Weld stainless steel alloys with GMAW (MIG) equipment			X		0			X
59. Weld carbon steels with GMAW (MIG) equipment	X		X		0			X
60. Disassemble and clean a GMAW (MIG) torch assembly	X		X		0			X
61. Disassemble and clean GTAW (TIG) torch assembly					0		X	X
62. Weld chrome-moly steel with GTAW (TIG) equipment					0		0	X
63. Weld copper or copper alloys with GTAW (TIG) equipment					X		0	X
64. Weld heat and corrosion resistant (Stainless) steels with GTAW (TIG) equipment					X		0	X
65. Weld carbon steels with GTAW (TIG) equipment					X		0	X
66. Weld magnesium alloys with GTAW (TIG) equipment					X		0	X
Duty: Operating Shielded Metallic Arc Welding Equipment								
67. Shielded metallic arc-weld cast iron		X			0			X
68. Shielded metallic arc-weld heat and corrosion resistant (stainless) steels		X			0			X
69. Shielded metallic arc-weld carbon steel	X	X			0			X
70. Cut cast iron with air carbon arc process		X			0	X		X
71. Hard surface steel with arc-welding equipment		X			0			X
72. Cut carbon steels using shielded metallic arc cutting process	X	X			0			X
73. Cut carbon steels with air carbon arc process	X	X			0	X		X
74. Remove or replace SMAW equipment accessories	X	X			0			X

Welding Purge

Duty: Performing Structural or Equipment Welding and Cutting Operations

	Production Welder	Arc Welder	M.I.G. Welder	Resistance Welder	General Combination Welder	Therm and Arc Cutters	T.I.G. Welder	Fitter Welder
75. Fabricate aluminum structures or devices		X	X		O	X	X	X
76. Fabricate or repair tubing systems		X	X		X		X	X
77. Reconstruct and align frames or related equipment								
78. Fabricate corrosion resistant steel		X	X		O	X	X	X
79. Fabricate protective devices for windows and openings		X	X		X	X	X	X
80. Fabricate metal reinforcing devices for structural foundations		X	X					X
81. Fabricate metal work stands or furniture		X	X	X	X		X	X
82. Fabricate or construct storage devices		X	X		X		X	X
83. Prepare and weld pipe joints		X	X		O	X	X	X
84. Cut metal using MAPP or propane type gas equipment					X	O		X
85. Set oven temperature and store ARC electrodes								O

Appendix C.6

Welding Curriculum Outline

A. General for all students in program		Approx. Time	Instructional Technique	Instructional Material	Evaluation	Equipment
Domain:	Rules & Regulations					
Tasks:	1. Know the rules and regulations of area school 2. Know policies and procedures of area school	4 Hours	Lecture Discussion	NCAVS Individualized Module "Demonstrate Knowledge of the Rules and Regulations of the NCAVS."	CR Test	None
Domain:	Safety					
Tasks:	1. Determine the nature of the problem 2. Know all emergency procedures for your work facility (school, work and home) 3. Obey all instructions given for operating equipment 4. Maintain safe working area	4 Hours	Lecture Discussion Demonstration	Safety Manual for equipment OSHA Manual Handouts: Emergency Procedure and Equipment Operations	Practical us	
	5. Identify OSHA rules that pertain to your occupational field 6. Obey all instructions for conduct in work area		Job Assignment	Daily Job Assignment	On-Job assignment	
Domain:	First Aid	2 Hours				
Tasks:	1. Administer emergency first aid (bleeding, wounds, burns, fractures, injury) 2. Administer abdominal thrust procedure or Heimlich maneuver to someone choking 3. Administer CPR 4. Administer first aid to victim suddenly ill (Heart attack, stroke, fainting, consulsion, epileptic seizure and diabetic reaction) 5. Administer first aid to someone under the influence of drugs		Lecture Demonstration	NCAVS Individualized Module: "Administer First Aid" American Red Cross Individualized program for first aid Human Resources: CPR Instructor State Hospital Demonstration on Seizures Standard First Aid and Personal Safety by the "Stroke" film by Trainex	CR Test	Filmstrip projector

		Approx. Time	Instructional Technique	Instructional Material	Evaluation	Equipment
Domain:	Career Education					
Tasks:	1. Investigate total program offering 2. Select job title preference 3. Determine career choice following secondary education	4 Hours	Lecture Discussion	Current career education material from Guidance office Career Education filmstrips from school library	Select Job Title for training in program	Filmstrip projector
Domain:	Youth Organization	20 Hours				
Tasks:	1. Participate in the organization of a local youth club 2. Participate (serve) as member of a youth club committee 3. Attend youth organizational meetings 4. Identify and examine the functions of officers 5. Conduct employer-employee activity(s) 6. Participate in a money making project 7. Teach pre-employment skills 8. Provide experience to develop positive human relation skills 9. Provide opportunities to develop leadership skills and communication skills by participating in: public relation activities in the community service activity(s) in the community social activities in club 10. Identify and practice mannerisms characteristic of good citizen		Lecture Discussion	Leadership Training Units for Vocational Youths from Purdue University, Dr. Bill Richardson	Youth participation	

		Approx. Time	Instructional Technique	Instructional Material	Evaluation	Equipment
Domain:	Operating Gas Welding Cutting Equipment	45 Hours	Lecture Demonstration Listen to tapes Movies Overhead transparencies	Oxy-acet. Welding Handbook Film strip on Oxy-acetylene Welding Safety Film strip - "Set-up of oxy-acetylene equipment" Textbook Modern Welding Unit 1-1, 2-1, 3-1, 4-1 Brazing unit 16-1 Modern Welding Basic Oxy-acetylene Welding, Delmar Movie Linde- "Oxy-acetylene cutting" Film strip (sound) "Welding Cast Iron"	Criterion-referenced test Performance test Visual evaluation Welding assignments	Student Acetylene tanks Oxygen tanks Maap gas Propane Regulators Hoses Welding torches Cutting torches Cutting attachments Tip cleaners Tip drills Preheat oven Goggles, pliers, Vice grips Striker, gloves Cap Teacher (Cassette player Tape player Film strip Projector Movie projector
Tasks:	1. Set up portable or stationary oxy-fuel equipment 2. Braze ferrous and non-ferrous metals with gas equipment 3. Change oxygen, acetylene or MAPP gas cylinders 4. Clean welding and cutting tips on oxy-fuel equipment 5. Cut carbon steels with oxy-fuel equipment 6. Form and shape with gas equipment 7. Gas weld cast iron 8. Gas weld copper or copper alloys 9. Gas weld ferrous pipe and tubing 10. Silver braze copper pipe joints 11. Gas weld carbon steels 12. Braze and fusion weld castings (repair) 13. Lead solder ferrous and non-ferrous metals with gas equipment 14. Perform soap and water and/or submerged leak test 15. Shape metals using gas welding equipment 16. Silver braze ferrous metals with gas equipment 17. Silver braze non-ferrous metals with gas equipment 18. Remove distortion using gas welding equipment					

	Approx. Time	Instructional Technique	Instructional Material	Evaluation	Equipment
Domain: Operating S.M.A.W. (Shielded Metal Arc Welding) equipment Tasks: 1. Set up arc-welding equipment 2. Shielded metallic arc-weld carbon steel 3. Shielded metallic arc-weld cast iron 4. Shielded metallic arc-weld heat and corrosion resistant (stainless) steels 5. Cut cast iron with air carbon arc process 6. Hard surface steel with arc-welding equipment 7. Cut carbon steels using shielded metallic arc cutting process 8. Cut carbon steels with air carbon arc process 9. Remove or replace SMAW equipment accessories	220 Hours	Lectures (verbal, taped) Demonstrations Movies Film strips Overhead transparencies	Textbook: *Modern Welding* A.W.S. Handbook Welding Encyclopedia *Welding Skills and Practices* Movies (Hobart) 8 Factors to Consider When Selecting An Electrode *Modern Welding* *The Sense and Nonsense of Welds* *Good welds and how to make them* Film strips: flat, horizontal, vertical, overhead, arc welding, mild steel	CR Test Assignment sheets for evaluation Observation Performance tests "in house" welding contest	Student Arc welders Transformers Rectifiers Generators Cables Clamps Positioner Chip hammer Brush, gloves, helmet, pliers Teacher Demostration equipment Film projector Overhead projector Tape recorder
Domain: Blueprint Reading Tasks: 1. Read and interpret detailed drawings 2. Select proper materials from specifications 3. Layout metal from drawings 4. Cut and prepare metal to specifications 5. Tack-up and fit metal, according to blueprint specifications and tolerances 6. Interpret symbols process references, and abbreviations	90 Hours	Lectures Overhead transparencies Film strip Self-study Class study & discussions	Textbook: *Blueprint Reading for Welders* Sketching assignments Drawing handouts Blueprints from industry Mechanical drawings Structural drawings	CR Test Evaluation of workbooks	Teacher Overhead projector Film strip projector

	Approx. Time	Instructional Technique	Instructional Material	Evaluation	Equipment
Domain: Operating M.I.G. (Metallic Inert Gas) equipment **Tasks:** 1. Set-up MIG equipment 2. Weld carbon steels MIG equipment 3. Weld aluminum and aluminum alloys with MIG equipment 4. Weld stainless and it's alloys with MIG equipment 5. Disassemble and clean MIG equipment	25 Hours	Lecture Film strip series Demonstrations Overhead projection Text book assignments Welding assignment sheets	Lecture "Tape" "MIG" welding equipment Basic MIG welding Delmar Modern Welding Overhead transparencies MIG Welding Assignment sheets	CR Test Observation Performance test Assignment sheet evaluation	Student MIG machine Wire drive torch clamp, helmet, gloves, cap Teacher Tape recorder Film projector Overhead projector Demo. equipment
Domain: Operate T.I.G. (Tungsten Inert Gas) Welding Equipment **Tasks:** 1. Set up TIG equipment 2. Weld carbon steels with GTAW (TIG) equipment 3. Weld aluminum or aluminum alloys with GRAW (TIG) equipment 4. Weld magnesium alloys with GTAW (TIG) equipment 5. Weld heat and corrosion resistant (stainless) steels with GTAW (TIG) equipment 6. Weld chrome-moly steel with GTAW (TIG) equipment 7. Weld copper or copper alloys with GTAW (TIG) equipment 8. Disassemble and clean GTAW (TIG) equipment	60 Hours	Lecture Film strip series Demonstrations Overhead projection Textbook assignments Welding Assignment Sheets	Lecture "TIG Welding Equip. and Principles Basic TIG Welding Delmar Modern Welding Overhead transparencies TIG Welding Assignment Sheets 1. mild steel 2. stainless steel 3. tool steel 4. aluminum 5. magnesium 6. zinc die cast 7. cast iron	CR Test Observation Performance test Assignment sheet evaluation	Student TIG machine torch, clamp, helmet, gloves, cap Teacher Tape recorder Film projector Overhead projector Demo equipment
Domain: Operating Auxiliary Equipment and Tools **Tasks:** 1. Use chip hammer 2. Cut metals with hand hacksaw 3. Drill metals using power drilling equipment	16 Hours	Lecture Demonstration Film strips	Film strips "Using metal working equipment"	CR Test Observation	Teacher Filmstrip projector

	Approx. Time	Instructional Technique	Instructional Material	Evaluation	Equipment
4. Grind metals with power equipment 5. Cut metal with power hacksaw 6. Wire brush with power equipment 7. Finish metal surfaces with hand tools 8. Shear and punch metal shapes using ironworking machine(s)					
Domain: Clean test and classify metals	10 Hours	Lecture Demonstration Film strip	Dye penetrant set Magna flux set Tensil test machine Guided bend testor Filmstrip "Cleaning Metals"	CR Test Performance Observation	Student See instructc materials Teacher Film strip projector
Tasks: 1. Examine-test and identify metals 2. Clean metals, mechanical methods and solvents 3. Test welds guided u-bend machine 4. Test welds tensil machine 5. Inspect welds with dye penetrants 6. Inspect for cracks using magna flux					
Domain: Set-up, tack and weld metal weldments (Fabrication-Certification)	30 Hours	Lecture Demonstration Research paper Overhead projector	A.W.S. Handbook Handout "AWS-ASTM" Guided bend procedure sheet Technical journals	CR Test Mechanical tests Performance test	Student All equipment in shop Teacher Overhead projector All equipment in shop
Tasks: 1. Select metals for fabrication fromblueprint specifications 2. Determine welding process 3. Draw sketches for shop or field projects 4. Research technical publications for welding standards 5. Determine welding electrodes or filler wires 6. Set up and tack weld tee joints 7. Set up and task weld goove joints 8. Certification procedures ADI-AWS ASTM-AISI					

	Approx. Time	Instructional Technique	Instructional Material	Evaluation	Equipment
9. Set up and tack weld corner or edge joints					
10. Set up and tack lapp joints					
11. Set up and tack weld in the flat position					
12. Set up and tack weld in the horizontal position					
13. Set up and tack weld in the overhead position					
14. Set up and tack weld in the vertical position					
15. Set up and tack weld grooved joints					
16. Set up and make a plug or slot weld					
17. Clamp metal work to prevent distortion and tack weld					
Domain: Estimate cost of job	10 Hours	Lecture Overhead transparencies	"Blueprint reading for Welders" Steel-aluminum handbooks Welding catalogs price lists		N.A.
Tasks: 1. Estimate the cost of labor					
2. Estimate the cost of materials					
3. Estimate the cost of any repairs					

	Approx. Time	Instructional Technique	Instructional Material	Evaluation	Equipment
B. Job Titles					
Resistance Welder					
Core tasks					
Production Welder					
Core tasks					
Therm and Arc Cutters					
Core Tasks					
M.I.G. Welder					
Core Tasks					
ARC Welder					
Core Tasks					
T.I.G. Welder					
Core Tasks					
General Combination Welding					
Core Tasks					
Fitter Welder (Supervisor)					
Core Tasks					
Supervise Work					
Assign work to others					
Plan and schedule work assignment					
Prepare shop budget					
Write job standards					
Conduct oral safety briefing					
Plan and conduct on-job-training					
Interview job applicants					

The Management System is
complete with its own
Appendix. Please refer
to it as a total document.
Pages 100-130

Appendix C.7

THE DISTRIBUTIVE EDUCATION MANAGEMENT SYSTEM

It is common to hear distributive education coordinators discuss the faults of the I.D.E.C.C. System. The most frequently mentioned faults are the need for a good way to efficiently organize them and the need to duplicate tons of materials. The management system I am going to describe will be implemented in the fall semester of 1979. It includes the techniques needed to organize the I.D.E.C.C. System into useable form for New Castle Area Vocational School's purpose. As for the duplicating problem, I see no way to avoid it. I will be depending on assistance from a clerk-typist provided by the performance-based curriculum office.

FILE BY COMPETENCY

Each L.A.P. contains one to ten competencies. These competencies are self-contained within the L.A.P. The competency includes a pre-test, performance objective, a list of learning activities, handouts, learning managers guide, post-test, pre-test key and post-test key. To make the I.D.E.C.C. materials more flexible our system will be organized by competency rather than L.A.P. There are 983 competencies. They are numbered 1 to 983. Each competency will be filed in a three-cut folder by number. We will remove the pre and post-test keys and the post-test from each competency folder. The keys will be stored in notebooks as will the post-tests. In the future, individual competency pre-tests and post-tests will be compiled into unit (domain) tests. These will be used for basic related instruction. Primary emphasis will be placed on core competencies during the first year of implementation. See the course curriculum outline to see how the competencies will be utilized. (Appendix A)

CROSS REFERENCE FILES

The "curriculum index file" and "curriculum organizers" are helpful in selecting competencies to be taught rather than a master list of competencies. These are four by six inch index cards. The "curriculum organizers" provide a listing of the competency, behavioral objectives, and learning activities. The curriculum organizer also indicates if the competency is a core competency. The curriculum index file is organized alphabetically by traditional distributive education units of instruction with sub topics within each unit. An example of one unit and sub topics is Advertising: purposes/types. The card lists competencies relating to this unit by number with the competency written out.

I have taken the objectives of the D.E. course and identified competencies that fit within each of the objectives by using the curriculum organizers and the curriculum index file. These competencies are listed in the sample course curriculum outline (Appendix A).

The curriculum organizers have about two-thirds of the card blank. I will use this to make notes about materials and resources needed to teach the competency and techniques that are good and bad.

I will develop a student evaluation file by competency number. I will adapt the student evaluation form and the teacher evaluation form found in Appendix B for class use.

TIME SCHEDULE

Our distributive education class meets Monday through Friday, one hour per day. I have decided to use Mondays for D.E.C.A. meetings, student reports such as diary sheets, savings, make-up work that must be completed in class, and problem sharing. Tuesdays and Wednesdays will be used for group instruction primarily from the core competencies. Thursdays and Fridays will be used for individualized instruction according to student occupational area. D.E.C.A.

competency-based events have identified competencies needed within each occupational area by master-employee level and owner-manager level. These, in addition to computer printouts for the student's career objective, will provide a basis for developing student contracts regarding individualized instruction. This will enable students to be preparing for D.E.C.A. competitive activities and realize that these activities are valuable to their performance on the job.

When all competencies had been identified to meet objectives, it was possible to set a time schedule as to how much time will be spent on each objective. The obvious problems that must be dealt with in setting this time schedule includes setting priorities, interruptions such as fund raising, and the variance in student interest and ability levels. A tentative time schedule has been prepared for the implementation, see the course curriculum outline.

D.E. RELATED CLASS EVALUATION

The student will be evaluated on his distributive education related class based on 50% basic related instruction and 50% specific related instruction. I will have a copy of the Student Competency Record for each student and the student will have a copy in his folder. Basic related instruction will be included on one set of Student Competency Records and specific related instruction will be listed in the student contract that is yet to be developed.

An example of the Student Competency Records covering the communication objectives is in Appendix C.

D.E.C.A. and I.D.E.C.C.

The D.E.C.A. competency-based competitive events integrate directly into D.E. curriculum when the I.D.E.C.C. materials are used as a reference. My plan of implementation includes using I.D.E.C.C. competencies for D.E.C.A.

competency-based competitive events to reinforce the compentencies found in each student's job title as spelled out in the student competency record. The individual training plan is developed from the student competency record and adapted to local job requirements.

STUDENT RECORD FILES

I will have a file for each student that will contain the information on what competencies will be covered in basic and specific related instruction (curriculum outline). The file will contain a Pre-Employment Module used to orient students to the vocational program.

The student's file will also contain a list of 76 distributive education occupations. This list can be used to order computer printouts of competencies needed for any of the occupations. The third item in the student's file will be an I.D.E.C.C. Student Orientation Handbook. This will be used to help the student understand the why and how of the I.D.E.C.C. System. The student's copy of a Student Competency Record will also be included here. Finally, I.D.E.C.C. Competencies identified for D.E.C.A. Competency-based competitive events will be in the student file.

CORE COMPETENCY IMPLEMENTATION

As stated earlier, the core competencies and other selected competencies will make up basic related instruction. This part of the curriculum will be taught as group instruction at least for the first six weeks of implementation. I will develop domain referenced tests as pre-tests and then build units of instruction based on need of the majority of the students. I will attempt to determine which students pre-test out of a significant number of competencies and allow them to work on their specific related instruction or aid in the teaching of the unit. Students will be informed as to which competencies we will be working on prior to their implementation.

Given time and resources, I will complete item analysis on tests and projects used to determine what competencies need retaught and/or reinforced. It is important to note that the grouping of competencies into units that meet course objectives is the basis of implementation of I.D.E.C.C. into existing curriculum. The analysis of competencies in this way insures that we are on the right track to meeting our course goals. In other words, it helps us teach what we want to teach and leave out other extraneous content.

Appendix A

Distributive Education Curriculum Outline

A. General for all students in program	Approx. Time	Instructional Technique	Instructional Materials	Evaluation	Equipment
Domain: Introduction to Performance-Based Learning System	3 Hours		IDECC Student Orientation Handbook	Criterion-Referenced Test (CR)	None
Tasks: 1. Use of P-B learning system 2. Identify program requirements 3. Identify coop responsibilities					
Domain: Rules and Regulations 1. Know the rules and regulations of area school 2. Know policies and procedures of area school	3 Hours		NCAVS Individualized modules "Demonstrate Knowledge of the Rules and Regulations of the NCAVS." Student Handbook: Guidelines, Rules and Regulations	CR Test	None
Domain: Human Relations	30 Hours	Individual Instruction Lecture Small Group Role Playing Case Studies	IDECC System Competency number:	Role playing CR Test Employer Evaluation Case study Project	Tape Recorder Filmstrip projector Overhead Chalkboard
Tasks: 1. Exercise self-control			294		
2. Maintain an objective attitude			284		
3. Accept criticism in a character building manner			295		
4. Develop an enthusiasm for living			158, 303		
5. Analyze your self-concept			302		
6. Apply the knowledge of how to be orderly and systematic			267		
7. Dress appropriately to maintain well-groomed appearance			263, 319		
8. Maintain good health habits			285		
9. Apply the traits of honesty and integrity to your life			312		

A. General for all students in program	Approx. Time	Instructional Technique	Instructional Materials	Evaluation	Equipment
10. Demonstrate the affective traits necessary for successful job performance			321, 286		
11. Demonstrate your ability to be innovative and creative			296		
12. Cooperate with fellow employees and management			310, 321, 283, 317, 276		
13. Adapt to change by attempting to look at all personal interactions by trying to see the other persons point of view (Adaptibility to change)			163, 313, 301, 316, 261, 289		
14. If you have trouble getting along with someone, determine what you can do to improve the situation			313, 274, 310, 280		
15. Remember when people fail to be successful on the job it is most often because they don't get along with others			272, 310, 309, 262		
16. Practice the concept: the customer is the most important person to the business			320, 268, 319		
17. Leave personal problems at home			294		
18. Don't be a part of gossip			287		
19. Follow the Golden Rule			320, 289		
20. Be patient with yourself and others (Remember that we all have our "bad" days)			294		
21. Organize and implement a professional development plan			334		
22. Maintain company loyality			287, 320		
23. Accept company policies as rules in positive manner			325		
			Working at Human Relations from Gregg/McGraw Hill Workbook Audio-Tape *Psychology and Human Relations*, Gregg/McGraw Hill		

A. General for all students in program	Approx. Time	Instructional Technique	Instructional Materials	Evaluation	Equipment
			101 Case Studies in Marketing and Distribution, I.U. Communications at Work South-Western Be-Attitude, filmstrips K-Mart Handouts		
Domain: Communications	10 Hours	Individual Instruction Lecture Small Group Role Playing Case Studies	IDECC System Competency number:	CR Test Role playing Employer Evaluation Public Presentation	Tape recorder Filmstrip Projector Teletrainers
Tasks: 1. Practice positive human relations skills when communicating			158, 169, 261, 303		
2. Demonstrate the use of body language for communicating a specific concern			166		
3. Speak clearly and concisely			111, 154		
4. Use correct English (Verbal and non verbal)			137, 144, 152		
5. Listen and respond to another person			96, 117, 119, 122 141, 160		
6. Participate in a group activity to address a given situation			167		
7. Resolve conflict constructively in a specific setting when appropriate			117, 122, 124, 161		
8. Use assertive behavior in a situation when appropriate			122, 950		
9. Make a public presentation (individual or group) for a specific reason			105, 120, 122, 950		

A. General for all students in program	Approx. Time	Instructional Technique	Instructional Material	Evaluation	Equipment
10. Listen carefully-read carefully			119, 146, 157		
11. Ask questions with purpose			127		
12. Remember a voice communicates welcome, conviction and confidence			150, 153, 164		
13. Think before you respond to communication			163, 93, 96, 101, 111, 716, 99.		
14. Analyze instructions you receive			97, 119, 101		
15. Give instructions on how to do something			100, 138, 139		
16. Write down all important messages for documentation			115		
17. Complete forms with attention on neatness, completeness and accuracy			94, 125, 126, 129		
18. Use legible handwriting			125		
19. Use common courtesy			163		
20. Function using proper chain of command			167, 93, 12, 168		
21. Write a letter to communicate a specific purpose			95		
22. Answer the telephone and give appropriate response			114, 156, 115		
23. Verbally relay telephone message			122		
24. Prepare written message received on telephone for someone else			130, 6, 115		
			Communications at Work from Gregg/McGraw Hill Workbook, slides, tapes World of Work from McKnight and McKnight Communications In Marketing Gregg/McGraw Hill Handouts		

A. General for all students in program	Approx. Time	Instructional Technique	Instructional Materials	Evaluation	Equipment
Domain: Employment Skills Tasks: *1. Decide on a job choice by analyzing one's aptitudes, skills and interests 2. Get personal records in order by obtaining social security card, birth certificate and work permit if needed 3. Identify local job opportunities for employment *4. Prepare a resume or personal data sheet for employment *5. Prepare a letter of application *6. Prepare a sample application *7. Participate in job interview 8. Complete business forms needed prior to employment 9. Calculate wages to determine gross income from a time card, identify deductions from paycheck and calculate net income 10. Determine fringe benefits' cash value 11. Learn the rules and regulations of your place of employment 12. Identify the characteristics of a successful employee 13. Get to work on time and be at your work station 14. Be willing to do physical and mental work	10 Hours (Some of these are developed during Jr. year in Sales/Marketing Class)	Practice completing forms Evaluating job applications and resumes in small groups Large and small group discussion Role playing Film (16mm) Values clarification scales to rank character of employee	NCAVS Individualized Modules "Get Your Personal Records In Order Prior to Obtaining a Job" NCAVS Module "Fill Out a Job Application Getting the Job from McGraw/Hill workbook, filmstrips Newsweek, Multimedia Kit, Earning a Living (A Realistic Guide to Working) Succeeding in the World of Work, Grady Kimbrell & Ben S. Vineyard, 1975 Be Attitudes filmstrips K-Mart Company rules and regulations project My Job Manual, Conrad Publishing Company Psychology and Human Relations, Gregg/McGraw Hill	CR Tests Actual job interview	Filmstrip projector Tape recorder 16mm projector
Domain: Your Job and the Law Tasks: 1. Identify techniques used by shoplifters 2. Specify procedures for surveilance and apprehension of shoplifters at your store	5 Days	Listen and observe examples on tape and film Discuss personal experiences	Retailing Principles and Procedures Gregg/McGraw Indiana Theft Manual for Relations and Shoplifting film from Indiana Related Council		

A. General for all students in program	Approx. Time	Instructional Technique	Instructional Materials	Evaluation	Equipment
3. Understand your role in customer service in regard to discouraging shoplifting 4. Understand your role in accepting all types of money substitutes 5. Understand how the short change artists work and how to prevent them 6. Understand the important of good customer relations and legal limitations involved in preventing all types of potential losses to your place of business		Case studies Values case problem Role playing Cost analysis Reading Assignments	Paper Hangers-film from Marsh Company Rules and Regulations project completed by student Guest speakers Store managers Prosecutor Training manuals from employer when available "Rip Off" article from Progressive Grocer Do's and Don'ts of of taking checks	CR Test	16 mm projector
Domain: DECA Activities Tasks: 1. Participate in planning porgram of activities for local chapter 2. Participate (serve) as member of a youth club committee 3. Attend youth organizational meetings 4. Identify and examine the functions of officers - participate in elections 5. Conduct employer-employee banquet 6. Prepare public relations program involving all members 7. Set public relations goals 8. Determine means of reaching goals 9. Make calendar of activities 10. Participate in a community service project 11. Participate in a social club activity(s)	55 Hours	Reading assignments Club meetings District, State, National Conferences In preparing for competitive activities students are provided opportunity to utilize training-station materials and IDECC materials as resources The use of these resources becomes a part of time spent on specific related instruction, not just preparation for contests	Guest speakers Handouts State, National DECA Handbooks Developing chapter program of activities for local DECA Chapters So You're on a Committee DECA is for everybody Film IDECC system IDECC Student Handbook	Conscientious participation	16 mm projector

A. General for all students in program	Approx. Time	Instructional Technique	Instructional Materials	Evaluation	Equipment
12. Participate in a money making project 13. Acquire basic understanding of parliamentary procedure 14. Participate in leadership development activities					
15. Participate in DECA competitive activities. Each student participates in district competition		Individualized Instruction - IDECC Competencies identified for competitive event	IDECC Competencies for DECA competency based competitive events 1. Advertising services 2. Food marketing 3. Food services 4. Petroleum 5. Finance and credit 6. General merchandizing 7. Apparel and accessories		
Domain: Safety and First Aid Tasks: 1. Use common sense and be alert 2. In case of robbery use common sense and don't be a hero 3. Lift a reasonable amount of weight at one time by using your legs, rather than your back 4. Be careful when stacking merchandise so it will not fall on you or others 5. Be careful when using box openers 6. Be careful with Freign elevators 7. Be careful with electrical equipment and outlets 8. Be careful when closing cash registers 9. Know location of fire extinguishers and how to use them 10. Be practical concerning safety 11. Know immediate first aid procedures	2 Hours	Handout Individual assignments Large and small group discussion Lecture Demonstration Role playing	Facility Emergency Manual when available OSHA Manual	Test	Samples of equipment students can bring to school

A. General for all students in program	Approx. Time	Instructional Technique	Instructional Materials	Evaluation	Equipment
Domain: Career Education Tasks: 1. Take appropriate career tests to assess your career interests 2. Investigate three tentative career choices 3. Select a future career 4. Select the post-secondary institution of your choice 5. Complete all work needed for acceptance to the institution 6. Complete all work needed for obtaining employment 7. Obtain financial aid for post-secondary training	10 Hours	Individual work Small group Lecture	Getting the Job, by Richard L. Lynch Newsweek Education Division Filmstrip, "What Kind of Job," & "Looking Ahead" Self-Directed Search by John Holland NCAVS Individual module "Select A Job Title For Vocational Training" D.O.T. Book		
Domain: Money Management Tasks: 1. Plan a budget 2. Operate on palnned budget for one month 3. Identify consumer responsibilities and practices 4. List agencies that protect consumer from fraud 5. Maintain a savings account 6. Identify legal responsibilities of consumer and seller	5 Hours	Project Class discussion Speaker	Succeeding in the World of Work, 1975 Kimbrell-Vineyard Applied Business Law South-Western	Completed Project	
Domain: Marketing and Our Free Enterprise System Tasks: 1. Describe the elements of our free enterprise system a. Competition b. Freedom of choice c. Right to own private property d. Balance of supply and demand e. Adaptability to change and growth	35 Hours	Films Speaker Reading assignments Large and small group discussion Group presentation Project Interviews	Retail Merchandising South-Western Free Enterprise Teaching Kit American Enterprise Film Series Phillip Petroleum Marketing Principles Transparency Set by Gregg Marketing, Sales Promotion and Advertising, South-Western	Participation Test Essay	16 mm projector overhead projector

A. General for all students in program	Approx. Time	Instructional Technique	Instructional Material	Evaluation	Equipment
2. Apply the elements of our free enterprise system to our private lives and our career opportunities			Retailing Principles and Practices, Gregg/McGraw Hill		
3. Describe considerations used in making management decisions relating to elements of marketing a. Products - design, packaging, markets, branding, product assortment b. Place - channels of distribution and store layout, shelf layout c. Pricing - policies, techniques of selling, prices d. Promotion - display, personal selling, advertising					

B. Individual Tasks by Job Title	Approx. Time	Instructional Technique	Instructional Materials	Evaluation	Equipment
1. Sales person	720 Hours	On-the-job Training	See attached local Training Plan (Based on competencies identified by IDECC System)	Employer Relation Instruction	
2. Cashier					
3. Receiving Clerk					
4. Stockperson					

Appendix B

Student Formative Evaluation

Module Title ______________________

Name ____________________________

Purpose: To obtain constructive criticism and complimentary comments concerning the learning activities in order to improve your training program.

Directions: Place a check mark in the columns that best express your feelings about each item you used. You do not have to sign the evaluation form but identification is helpful to permit follow-up. You will not receive any reprisal because of your comments.

Item To Be Evaluated	VOCABULARY			CONTENT				VALUE			
	Too Easy	Just Right	Too Hard	Complete	Boring	Hard to Follow	Too Difficult	New Inform.	Old Inform.	Useful	Not Helpful
INSTRUCTIONS											
GOAL											
OBJECTIVE											
LECTURE											
DEMONSTRATION											
TEXTS											
TRANSPARENCIES											
AUDIO-TAPE											
SLIDES											
WORK SHEETS											
DISCUSSION GROUPS											
INTERVIEWS											
TOURS											
PRACTICE											
MASTER TEST											

Additional suggestions or comments concerning module, criterion-referenced test, or learning activities:

Teacher Summative Evaluation

Module Title ____________________

Instructor's Name ________________

Purpose: To provide a process to evaluate and make appropriate changes toward course improvement.

(1) To compare each performance objective to its criterion-referenced test.
(2) To determine student's attitudinal evaluation toward the learning experience.

Directions: From the student performance records, module evaluation forms and personal interviews compile the appropriate information on each module or learning experience.

Student Name	Student Performance		Student Evaluation Form Problem Areas			Student Interview Problem Areas		
	% Accuracy Obtained at Mastery Level	# of Times Needed to Reach Mastery Level	Vocabulary	Content	Value	Vocabulary	Content	Value

Teacher Summative Evaluation

Analyze the information listed on the formative evaluation by answering the following questions.

Vocabulary:

1. Do the general performance objective and the specific performance objectives clearly state the performance, conditions and level of accuracy required of each student?
2. Is the reading level appropriate for the student population?

Content:

1. Has the student shown mastery of each specific objective before trying to master the general performance objective?
2. Is the general performance objective broken down into all necessary specific objectives?
3. Do the learning activities provide necessary information and experiences needed to master the specific performance objectives?
4. Has the student received guidance and feedback for each procedure practiced before taking the master test?

Value:

1. Does the student like the learning activities selected?
2. Is there another appropriate learning activity for the specific performance objective?
3. Does the student have a learning disability?
4. Does the student have a positive learning attitude?

Appendix C
Student Competency Record
IDECC

Student Name ______________________________

Course goal: Provide opportunities for the student to practice appropriate means of communication with others.
Course objective: Communicate in an organization
Student Unit (Domain): Communications

Student Objective # in Course Curriculum	IDECC Competency #	IDECC Competencies	Date Completed	Level of Performance
12, 19	93	Knowledge of how to suggest changes to management		
20	97	Knowledge of how to communicate with others in order to motivate them to work willingly		
21	100	Knowledge of the approaches which can be used in assigning duties and delegating authority so that everything is completely clear		
24	102	Knowledge of when to keep communications confidential		
7	105	Knowledge of the important benefits--both short and long-range--derived from keeping the public as much aware of the store's image as possible		
8-10	117	Skill in interpreting store policies to customers		
8, 15, 20	119	Skill in listening to and following directions		
7	120	Skill in using the terminology of distribution and developing a vocabulary descriptive of the product or service being sold		
5,7,8,10,11	122	Skill in effective use of speech and vocabulary		
12, 16	127	Skill in communicating effectively with customers, co-workers and supervisors		

Page 2
Objective: Communicate in an organization

Student Objective # in Course Curriculum	IDECC Competency #	IDECC Competencies	Date Completed	Level of Performance
21	138	Skill in the ability to assist with training or teaching others		
21	139	Skill in the ability to convey directions and instructions clearly to employees		
8	141	Skill in the ability to interpret to management the progress of a certain department, system or function within the store		
25	144	Attitude that ability to communicate skillfully in good English is essential to a person's business development		
15	146	Attitude that an intra-store news medium is an excellent way to keep employees informed of changing policies, individual and employee activities and coming events		
25	152	Use correct enunciation and pronunciation in speaking		
23	158	Attitude that an awareness that nothing is quite so important or contagious as enthusiasm--for the store, for the merchandise and for customers		
19	163	Attitude that a realization that first impressions are important to the business and last impressions are longest remembered		
9-12	167	Attitude that attending departmental or store-wide meetings is a good way to keep informed of promotions, changing methods and operating picture		

Objective: Communicate in an organization

Student Objective # in Course Curriculum	IDECC Competency #	IDECC Competencies	Date Completed	Level of Performance
23	169	Attitude that since retail business organizations have many common goals and problems, they should maintain cordial working relationships which will permit a flow of ideas among them		
23	261	Knowledge of how to get results through people by practicing effective human relations		
11	950	An awareness that successful selling hinges on adequate product information, the customer's understanding and the saleperson's personality		

Student Competency Record
IDECC

Name ______________________________

Course goal: Provide opportunities for the student to practice appropriate means of communication with others.
Course Objective: Face to Face Communications
Student Unit (Domain): Communications

Student Objective # in Course Curriculum	IDECC Competency #	IDECC Competencies	Date Completed	Level of Performance
8, 19	96	Knowledge of how to address other people in a business-like manner whether they are customers, fellow employees, supervisors or management		
19, 20	101	Knowledge of the situations in which to use a technical language or commonly understood language		
19	111	Understand that since interpretations placed on the spoken word vary with different poeple, one must be careful to speak so that correct interpretation can be made by individual listeners		
19	116	Skill in satisfactorily handling customer inquiries for general information		
10	124	Skill in interpreting management's policies to employer and employee's problems to management		
25	137	Ability to talk clearly and pleasantly conveying spirit and enthusiasm in one's speech		
21	149	Attitude that an awareness that fashion and style information, product knowledge and business trends can be obtained by reading trade and business journals and publications		
17	150	An awareness that the voice can be used to express conviction and convey confidence		
17	151	Attitude that the tone of voice can express sincere welcome and eagerness to be of service		

Objective: Face to Face Communications

Student Objective # in Course Curriculum	IDECC Competency #	IDECC Competencies	Date Completed	Level of Performance
25	152	An appreciation of the value of correct enunciation and pronunciation in speaking		
17	153	An awareness that the use of terms of "endearment" lowers the merchandise, the salesperson and the store's image in the estimation of the customer		
15	157	Attitude that by listening "with a sensitive ear" one can often detect sources of complaints or grievances among store personnel		
23	158	An awareness that nothing is quite so important or contagious as enthusiasm--for the store, for the merchandise and for customers		
8	160	Belief that communication must be a two-way process between management and employees		
10	161	A realization that even in the most skillfully constructed communications misinterpretations will develop		
13, 19	163	A realization that first impressions are important to the business and last impressions are the longest remembered		
17	164	Awareness that certain thoughtlessly used terms or words can be misinterpreted by the listener		
1	166	A realization that gestures help convey feelings in spoken communications		
21	167	Attitude that attending departmental or store-wide meetings is a good way to keep informed of promotions, changing methods and operating picture		
12	168	A belief that communications between the various departments and divisions within a store will result in a more efficient operation with mutual benefits to all		

Student Competency Record
IDECC

Student Name ______________________

Course goal: Provide opportunities for the student to practice appropriate means of communication with others.
Course objective: Telephone Communications
Student Unit (Domain): Communications

Student Objective # in Course Curriculum	IDECC Competency #	IDECC Competencies	Date Completed	Level of Performance
19	99	Knowledge of the differences that exist in communications used in selling over the telephone and over the counter		
18, 26	111	Understand that since interpretations placed on the spoken word vary with different people, one must be careful to speak so that correct interpretation can be made by individual listeners		
4	114	Skill in using the telephone correctly and most effectively		
4, 6, 22	115	Skill in receiving or giving telephone orders, complaints and messages		
6	130	Skill in listening to customer's names and addresses and writing them correctly		
26	154	A belief that the voice is an important medium through which selling is accomplished		
4	156	An awareness of the importance of adequate merchandise knowledge in telephone selling		

Student Competency Record
IDECC

Student Name ________________________

Course goal: Provide opportunities for the student to practice appropriate means of communication with others.
Course objective: Written Communications
Student Unit (Domain): Communications

Student Objective # in Course Curriculum	IDECC Competency #	IDECC Competencies	Date Completed	Level of Performance
18	94	Knowledge of how to sue written communications in forms and reports		
2	95	Knowledge of the correct forms used in business letter writing		
6	115	Skill in receiving or giving telephone orders, complaints and messages		
14, 18	125	Skill in writing saleschecks legibly so that errors in delivery, quantities sent and amounts charged for can be eliminated		
18	126	Skill in writing purchase orders legibly so that errors in quantities, shipping, pricing information, etc., can be eliminated		
18	129	Skill in compiling several reports into a composite report, statement or presentation for management		
6	130	Skill in listening to customers' names and addresses and writing them correctly		
2	133	Skill in writing informative and effective business letters		

Student Competency Record
IDECC

Student Name ______________________

Course goal: Provide opportunities for the student to practice positive human relations
Course objective: Self Concept
Student Unit (Domain): Human Relations

Student Objective # In Course Curriculum	IDECC Competency #	IDECC Competencies	Date Completed	Level of Performance
4	158	An awareness that nothing is quite so important or contagious as enthusiasm- for the store, for the merchandise and for customers		
13	163	A realization that first impressions are important to the business and last impressions are longest remembered		
15	262	Knowledge of the factors which appear to affect employee morale		
15	272	Knowledge of morale as being the term frequently used to describe employee attitudes toward their jobs, employer and fellow employees.		
10	286	Skill in developing personality traits necessary for successful job performance		
3	295	In accepting criticism and turning it into a character-building element		
5	302	Ability to understand one's self		
9	312	That honesty and integrity are personality traits necessary in job situations such as record-keeping, time-keeping, and stockkeeping in addition to jobs that require working with money		

Student Competency Record
IDECC

Student Name ____________________

Course goal: Provide opportunities for the student to practice positive human relations
Course objective: Self Discipline
Student Unit (Domain): Human Relations

Student Objective # In Course Curriculum	IDECC Competency #	IDECC Competencies	Date Completed	Level of Performance
6	267	Knowledge of how to be orderly and systematic		
12	269	Knowledge of how to build sound working relationships in "forced" associations		
12	281	Skill in developing and maintaining harmonious relationships with other employees		
12	283	Skill in working cooperatively with fellow employees, supervisors in management and being aware of their needs and motivations		
2	284	Skill in maintaining an objective point of view in problem situations		
1,17,20	294	Skill in exercising self-control during trying situations		
3	295	Skill in accepting criticism and turning it into a character-building element		
11	296	Skill in demonstrating initiative and creativity		
13	301	Skill in adjusting to change		
5	302	Ability to understand one's self		
13,14	313	An awareness that understanding others and one's self is basic to working harmoniously together		
21	334	A recognition of the need for joining and participating in meetings and activities which will improve personal and professional development		

Student Competency Record
IDECC

Student Name ____________________________

Course goal: Provide opportunities for the student to practice positive human relations
Course objective: Personal Appearance
Student Unit (Domain): Human Relations

Student Objective # In Course Curriculum	IDECC Competency #	IDECC Competencies	Date Completed	Level of Performance
7	263	Knowledge of how to dress appropriately for the job and maintain a well-groomed appearance		
8	285	Maintaining good health for effective job performance		
7,16	319	An awareness that good personal apperance helps create effective customer impressions		

Student Competency Record
IDECC

Student Name ______________________

Course goal: Provide opportunities for the student to practice positive human relations
Course objective: Job performance
Student Unit (Domain): Human Relations

Student Objective # In Course Curriculum	IDECC Competency #	IDECC Competencies	Date Completed	Level of Performance
13	261	Knowledge of how to get results through people by practicing effective human relations		
16	268	Knowledge of how to show an interest in others		
18,14	274	Understanding that a positive attitude is usually reflected in one's work		
12	276	Human relations in the retail organization consists of an interdependence with fellow employees, supervisors and customers.		
14	280	Knowledge of the ways to effectively handle different customers		
10	286	Skill in developing personality traits necessary for successful job performance		
22,18	287	Skill in representing the business favorably to customers and outside business associates		
13	288	Skill in adapting to the personality and needs of customers		
19	289	Skill in avoiding misrepresentations of people, products and policies		
13	301	Skill in adjusting to change		
4	303	Skill in generating enthusiasm toward people		

Page
Objective: Job performance

Student Objective # In Course Curriculum	IDECC Comptency #	IDECC Competencies	Date Completed	Level of Performance
23	308	Attitude that the store's personnel policies are established for the benefit of the store and the employee		
15	309	Attitude that the next job performance, human relations is an employee's greatest responsibility		
12,14,15	310	Attitude that the worker's satisfactory job performance includes not only what he does, but also how he influences other people. whether good or bad		
9	312	Attitude that honesty and integrity are personality traits necessary in job situations such as record-keeping, time-keeping and stockkeeping in addition to jobs that require working with money		
13	316	An awareness that an employee must be willing to accept and adjust to change		
12	317	An awareness of the necessity to perform tasks in addition to one's job responsibilities when situations necessitate		
16,19,22	320	A feeling that good human relations within a company build good public relations		
10,12	321	An awareness that good human relations improve employee morale by encouraging cooperation, generating happiness and creating harmony		
23	325	A willingness to accept and put into practice the planned policies and procedures of management		

Student Competency Record
IDECC

Student Name ______________________________
IDECC competencies for DECA Competency Based Competitive Events
Specific Competency ________________________

1. Advertising services
2. Food marketing
3. Food services
4. Petroleum
5. Finance and credit
6. General merchandizin
7. Apparel and accessories

IDECC Competenceny # Chosen	IDECC Competencies for Contest	Date Completed	Level of Performance

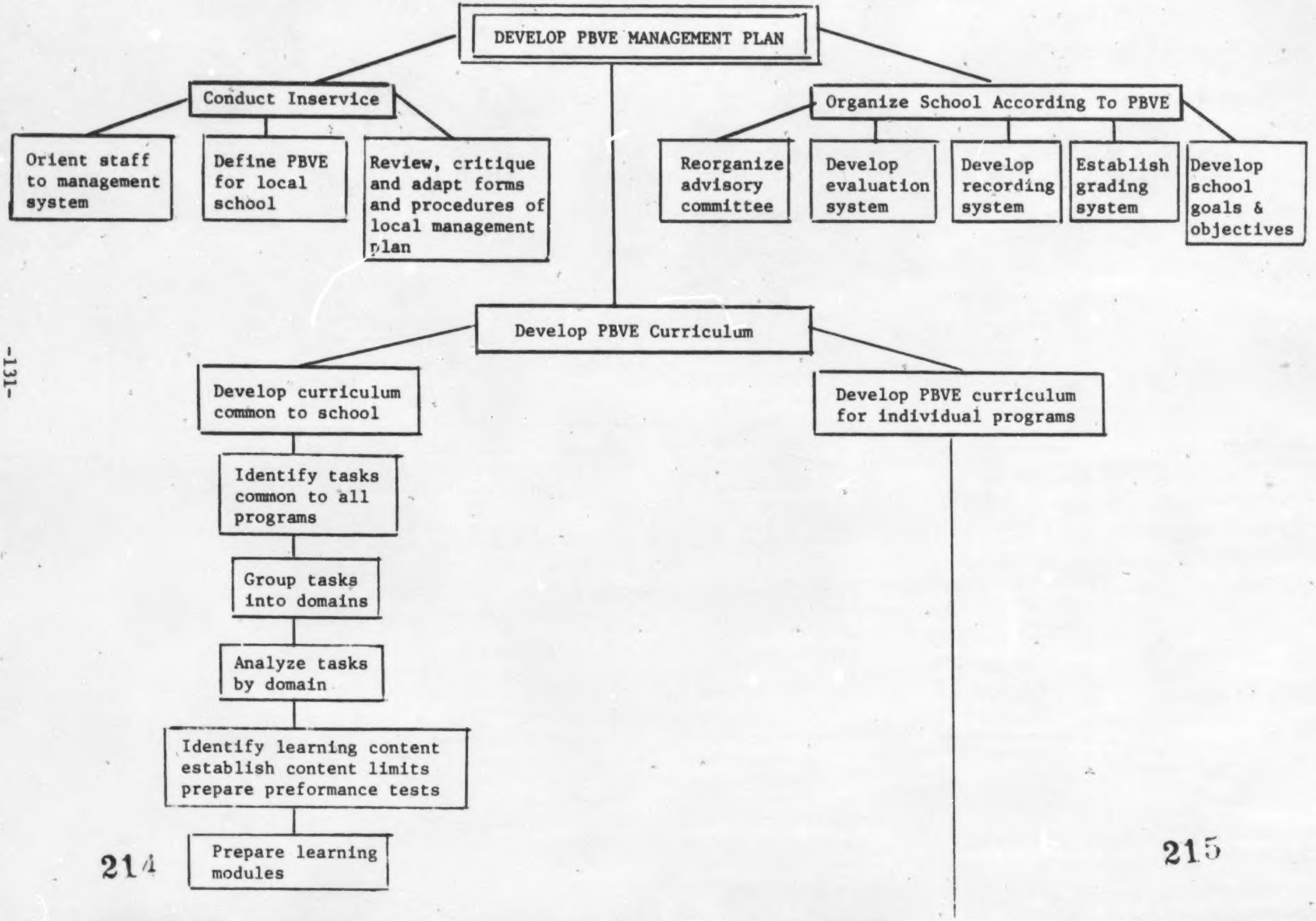
APPENDIX D

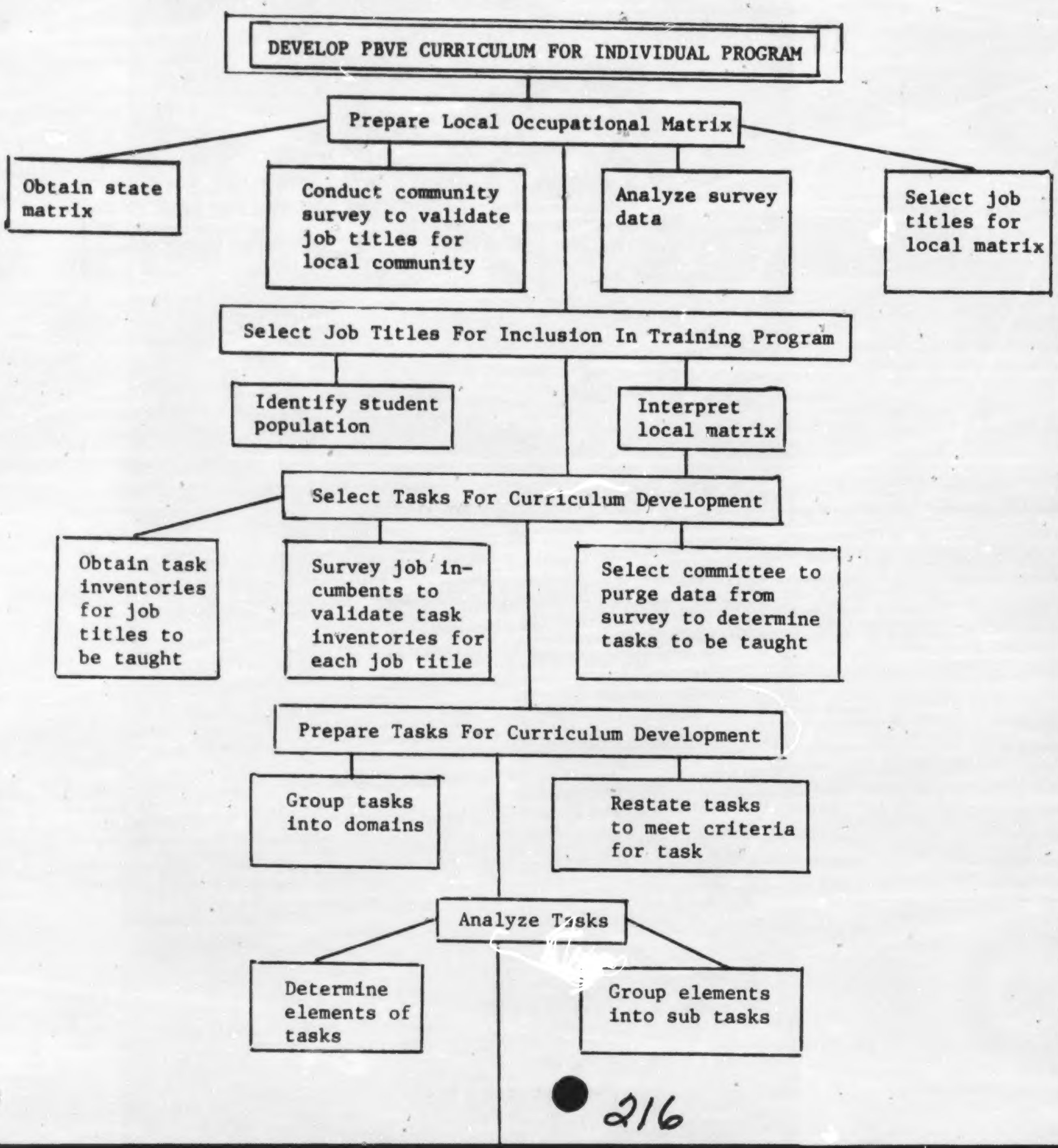
D.1 NCAVS Performance-Based Management System . . . 131

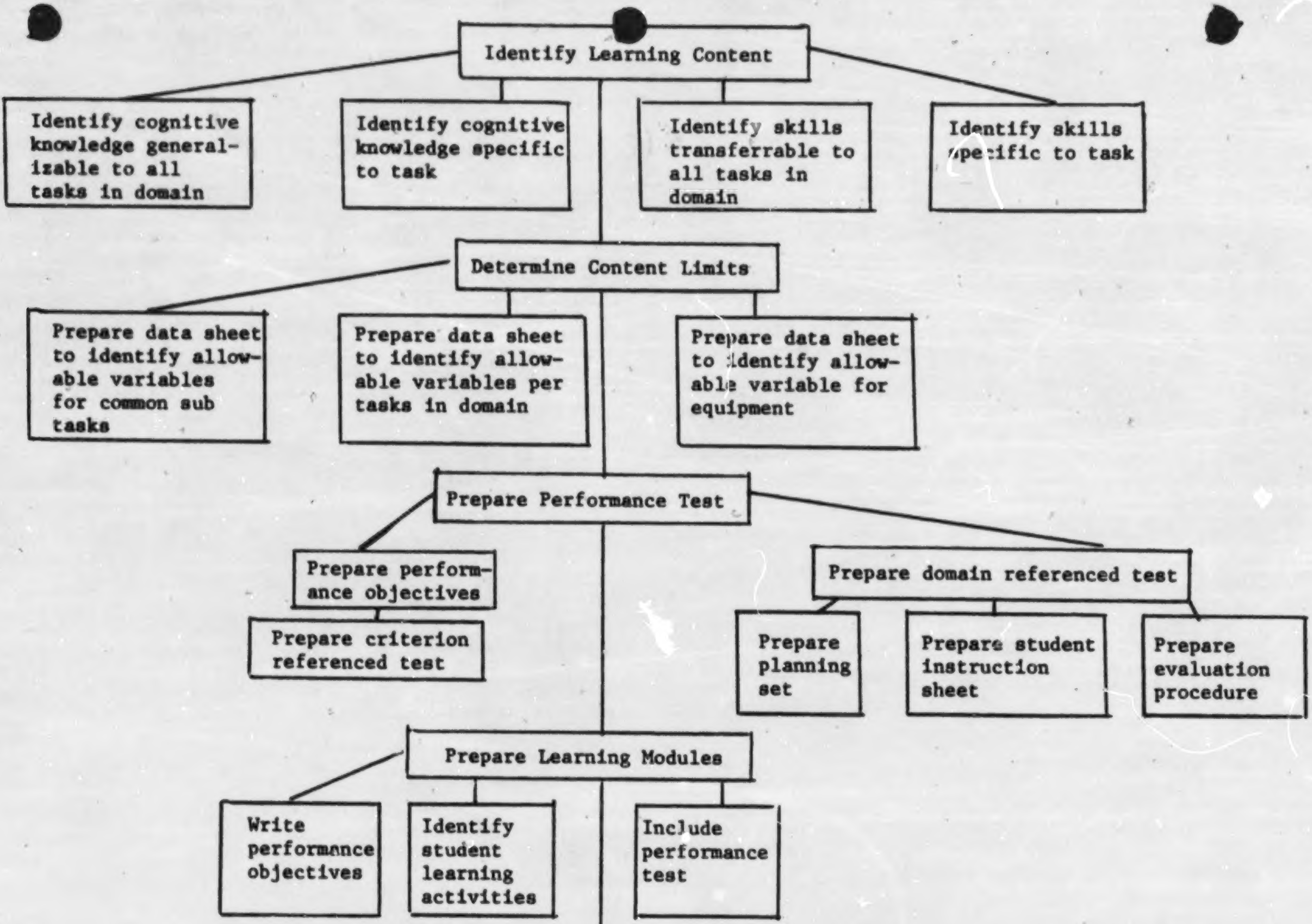
D.2 Formative Evaluation Forms 135

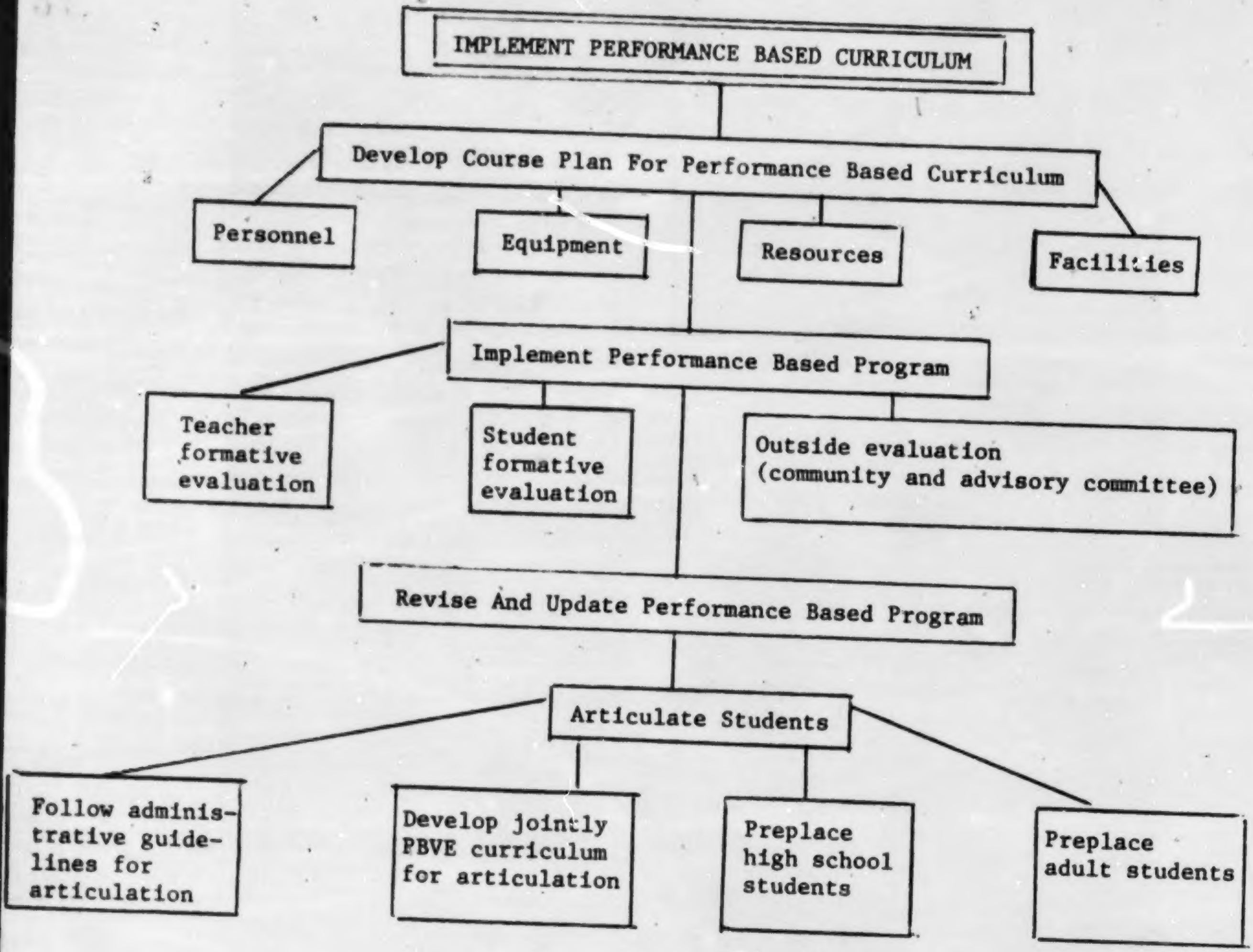
Append D.1

Figure 1: Local Management Plan for Performance Based Vocational Education


DEVELOP PBVE MANAGEMENT PLAN
Conduct Inservice
Orient staff to management system
Define PBVE for local school
Review, critique and adapt forms and procedures of local management plan
Organize School According To PBVE
Reorganize advisory committee
Develop evaluation system
Develop recording system
Establish grading system
Develop school goals & objectives
Develop PBVE Curriculum
Develop curriculum common to school
Identify tasks common to all programs
Group tasks into domains
Analyze tasks by domain
Identify learning content establish content limits prepare preformance tests
Prepare learning modules
Develop PBVE curriculum for individual programs


DEVELOP PBVE CURRICULUM FOR INDIVIDUAL PROGRAM
Prepare Local Occupational Matrix
Obtain state matrix
Conduct community survey to validate job titles for local community
Analyze survey data
Select job titles for local matrix
Select Job Titles For Inclusion In Training Program
Identify student population
Interpret local matrix
Select Tasks For Curriculum Development
Obtain task inventories for job titles to be taught
Survey job incumbents to validate task inventories for each job title
Select committee to purge data from survey to determine tasks to be taught
Prepare Tasks For Curriculum Development
Group tasks into domains
Restate tasks to meet criteria for task
Analyze Tasks
Determine elements of tasks
Group elements into sub tasks


Identify Learning Content
Identify cognitive knowledge generalizable to all tasks in domain
Identify cognitive knowledge specific to task
Identify skills transferrable to all tasks in domain
Identify skills specific to task
Determine Content Limits
Prepare data sheet to identify allowable variables for common sub tasks
Prepare data sheet to identify allowable variables per tasks in domain
Prepare data sheet to identify allowable variable for equipment
Prepare Performance Test
Prepare performance objectives
Prepare criterion referenced test
Prepare domain referenced test
Prepare planning set
Prepare student instruction sheet
Prepare evaluation procedure
Prepare Learning Modules
Write performance objectives
Identify student learning activities
Include performance test


IMPLEMENT PERFORMANCE BASED CURRICULUM
Develop Course Plan For Performance Based Curriculum
Personnel
Equipment
Resources
Facilities
Implement Performance Based Program
Teacher formative evaluation
Student formative evaluation
Outside evaluation (community and advisory committee)
Revise And Update Performance Based Program
Articulate Students
Follow administrative guidelines for articulation
Develop jointly PBVE curriculum for articulation
Preplace high school students
Preplace adult students

Appendix D.2

Student Formative Evaluation

Module Title ______________________

Name ______________________

Purpose: To obtain constructive criticism and complimentary comments concerning the learning activities in order to improve your training program.

Directions: Place a check mark in the columns that best express your feelings about each item you used. You do not have to sign the evaluation form but identification is helpful to permit follow-up. You will not receive any reprisal because of your comments.

Item To Be Evaluated	VOCABULARY			CONTENT				VALUE			
	Too Easy	Just Right	Too Hard	Complete	Boring	Hard to Follow	Too Difficult	New Inform.	Old Inform.	Useful	Not Helpful
INSTRUCTIONS											
GOAL											
OBJECTIVE											
LECTURE											
DEMONSTRATION											
TEXTS											
TRANSPARENCIES											
AUDIO-TAPE											
SLIDES											
WORK SHEETS											
DISCUSSION GROUPS											
INTERVIEWS											
TOURS											
PRACTICE											
MASTER TEST											

Additional suggestions or comments concerning module, criterion-referenced test, or learning activities:

1 of 2

Teacher Formative Evaluation

Module Title ____________________

Instructor's Name ________________

Purpose: To provide a process to evaluate and make appropriate changes toward course improvement

(1) To compare each performance objective to its criterion-referenced test.
(2) To determine student's attitudinal evaluation toward the learning experience.

Directions: From the student performance records, module evaluation forms and personal interviews compile the appropriate information on each module or learning experience.

Student Name	Student Performance		Student Evaluation Form Problem Areas			Student Interview Problem Areas		
	% Accuracy Obtained at Mastery Level	# of Times Needed to Reach Mastery Level	Vocabulary	Content	Value	Vocabulary	Content	Value

Teacher Formative Evaluation

Analyze the information listed on the formative evaluation by answering the following questions.

Vocabulary:

1. Do the general performance objective and the specific performance objectives clearly state the performance, conditions and level of accuracy required of each student?
2. Is the reading level appropriate for the student population?

Content:

1. Has the student shown mastery of each specific objective before trying to master the general performance objective?
2. Is the general performance objective broken down into all necessary specific objectives?
3. Do the learning activities provide necessary information and experiences needed to master the specific performance objectives?
4. Has the student received guidance and feedback for each procedure practiced before taking the master test?

Value:

1. Does the student like the learning activities selected?
2. Is there another appropriate learning activity for the specific performance objective?
3. Does the student have a learning disability?
4. Does the student have a positive learning attitude?

FINAL REPORT ABSTRACT

The Process/Products of this Project are:

1. a field tested articulation plan that permits students (secondary or adult) to receive credit for prior mastery of tasks and to be pre-placed into postsecondary vocational programs.

2. in-service training sessions held to train secondary and postsecondary staff in the preparation of performance-based curriculum and implementation of the articulation plan.

3. performance-based curricula prepared for the job titles: child care assistant, clerk-typist, machinist apprentice and medical assistant. Curriculum included grouping of tasks by domains, task analyses, content identification sheets, content limit data sheets and domain referenced tests.

4. performance-based secondary programs developed for the New Castle Area Vocational Schools. The programs are gradually and systematically being converted from traditional programs to performance-based ones. Each program will have a community survey, local occupational matrix, list of tasks for the curriculum and course plan.

The Specific Objectives of the Proposal are:

1. to develop and implement an economically feasible articulation plan based on performance-based curriculum between the New Castle Area Vocational School (NCAVS) and/or Indiana Vocational Technical College (IVTC) Regions 6 and 8. At least one job title of a program area will be implemented to field test the articulation plan for students between secondary and postsecondary levels.

2. to implement in-service staff training programs for the New Castle Area Vocational School, IVTC-Region 6 and IVTC-Region 8 instructors to teach them how to develop performance-based programs utilizing available V-TECS catalogs. In-service programs will be conducted both separately and jointly among the NCAVS, IVTC-Region 6 and IVTC-Region 8 staffs with at least eight (8) in-service programs being conducted.

3. to select four program areas with identified job titles for joint staff curriculum development between New Castle Area Vocational School and/or IVTC-Region 6 and IVTC-Region 8. Job titles will be medical assistant, child care assistant, clerk-typist and machinist apprentice. The curriculum will be developed according to State Board Management System. The curriculum will serve disadvantaged and handicapped as well as regular students. The performance-based curriculum developed for each job title will include task analyses, content identification, content limits and domain referenced tests. Modules will be developed for as many of the selected tasks as time permits. Two in-service programs will be held with the joint staff to evaluate, plan, and share performance-based curriculum developed.

4. to continue the development of performance-based curriculum for 12 program areas of the NCAVS using the State Board Management System. Each of the 12 area vocational school program areas will have completed the following steps by the end of the program: conducted community survey to determine local job title matrix, prepared a local matrix, prepared or obtained task lists for the local job title matrix, selected job title(s) for curriculum development, validated tasks for job title(s) selected for curriculum development and selected core tasks for each program area.

The Procedures for Achieving each Objective are:

The administration structure of the project provided that a principal investigator be employed to assume the responsibility for completion of all designated activities. The Directors of Instruction from IVTC Regions 6 and 8, plus the Director of the NCAVS served as an advisory committee to assist the principal investigator in the completion of the project. Staff members of IVTC Regions 6 and 8, along with their occupational cohorts of the area school, were selected to participate in the curriculum development. Specific procedures were followed to reach each objective. For clarity each objective is addressed singularly.

Objective 1

The following procedure was used to develop the articulation plan. The principal investigator designed a proposed articulation plan. Then the advisory committee reviewed the articulation plan and made recommendations for change. The principal investigator revised the articulation plan in compliance with the recommendations of the advisory committee.

Following the development of performance-based curriculum for the medical assistant program, the articulation plan was field tested involving medical assisting students. Based on data collected from the field testing of the articulation plan and input from the advisory committee, the principal investigator modified the plan.

Objective 2

Separate and joint staff in-service training sessions were conducted. In-service training sessions helped orient total staff members of IVTC Regions 6 and 8 and NCAVS to the objectives of the project. These sessions provided the opportunity to train the four program area staffs in the preparation of performance-based curriculum. The performance-based curriculum was used as the basis for articulation between the two levels of vocational education. The monthly meetings facilitated maximum performance-based curriculum development between the staff of the two educational levels.

Separate in-service sessions assisted the total staff of the NCAVS to continue the development and implementation of performance-based programs. Additional in-service sessions helped the secondary and postsecondary staff of the medical assistant programs organize and field test the articulation plan.

Objective 3

Four program areas were selected for joint curriculum development. A specific job title was identified in each program area. The job titles were child care assistant, clerk-typist, machinist apprentice and medical assistant. The joint program staff followed set procedures during the curriculum development. The staff first studied data from the V-TECS catalog compiled for each job title. Domain(s) of tasks for curriculum development that were common to both educational levels were then selected. The postsecondary medical assistant program for the first quarter was adjusted to permit maximum articulation. Tasks were then restated to meet specific criteria needed for task statements. Performance-based curriculum was developed by: performing task analysis on each task, determining subtasks, identifying learning content, determining content limits and preparing domain test(s). Modules for the medical assistant area which had been selected for field testing the articulation plan were developed.

Objective 4

The NCAVS staff representing twelve occupational areas continued the development of performance-based programs according to the State Board of Vocational and Technical Education Management System. Although the twelve programs were at different levels of development, the NCAVS staff completed the following stages of development during the project year: community surveys were conducted to determine local job titles matricies and/or to validate the state matrix for the local community; a job title matrix for each occupational area was prepared; task inventories were prepared or obtained for the job titles; job titles were selected for curriculum development; tasks were validated; core tasks for each program curriculum were selected and program curriculum outlines for all twelve vocational programs were prepared.

A performance-based distributive education program, based on the IDECC System, which was prepared by the project staff, is currently being field tested. Additionally, the NCAVS students participated in a mini-field test for the domain referenced test entitled "Drill Operation Domain," prepared by Dr. Bill West. A summary of the field test is found in Appendix C.

The Potential Impacts on Vocational Education are:

The impact of this project should be significant to vocational administrators and teachers in the state and nation. The project has demonstrated that staff can be trained, through proper in-service, to develop performance-based programs. Also the project has demonstrated how the change to PBVE programs can be accomplished on a gradual basis without disrupting the efficient operation of existing programs.

The cooperative development and use of PBVE curriculum by secondary and postsecondary instructors provided the basis by which students could be articulated between educational levels without loss of training time or money invested. The articulation plan developed by the project proved to be workable for the students, staff and administrators. The articulation plan is adoptable for any secondary vocational program interested in articulation of students to the Indiana Vocational and Technical College System.